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Original Communications.

*A CONSIDERATION OF CERTAIN DOUBTFUL POINTS IN THE MANAGEMENT OF ABORTION.**

BY CHARLES P. NOBLE, M.D.,
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There are many problems which come up for solution in the management of cases of threatened abortion, for the proper determination of which all of the resources of the practitioner are requisite. Few cases in clinical medicine make greater demands upon his tact, knowledge, experience, and judgment, for their proper treatment, than cases of threatened abortion. As a contribution to the study of the subject, I shall offer my own views concerning four of the problems which frequently present themselves. 1. When is abortion inevitable? 2. When is abortion complete? 3. After septic abortions, when shall irrigation of the uterus be discontinued? 4. After septic abortions, when shall operation *per vaginam* or by abdominal section be done?

When is abortion inevitable? Every practitioner of experience is aware of the delicate nature of the question as to when abortion is inevitable. Upon its proper solution depends, upon the one hand the chances for existence

*Read before the Philadelphia County Medical Society, Nov. 27, 1895.

of a human being yet unborn, and upon the other hand the well-being, the health, and it may be the life, of the pregnant woman. Unfortunately it is difficult, if not impossible, to lay down hard-and-fast rules to determine when abortion is inevitable. It is currently believed that when hemorrhage occurs from a pregnant uterus, and contractions of the uterus have come on, abortion is inevitable; but I have seen these symptoms subside under appropriate treatment, and the pregnancy go on to full term, with the delivery of a living child and with no ill-result to the woman. In this connection reference may be made to a case reported by Scanzoni, of a woman who was seized with profuse metrorrhagia in the third month of pregnancy. Great numbers of clots were discharged, and, as all hopes of saving the ovum were abandoned, ergot was used in large doses, and tampons were placed in the vagina. After thirty-six hours, a sound was employed to explore the uterus; and finally, as the bleeding continued for three weeks, an intra-uterine injection of a weak solution of perchloride of iron was resorted to. Eight weeks later the patient quickened, and presented the distinctive evidences of a pregnancy advanced to the sixth month.* I, myself, was consulted in a case in which the pregnancy had continued in spite of systematic application to the endometrium of pure carbolic acid, continued over some weeks.

When, in addition to hemorrhage of the uterus, there is a dilatation of the cervix and descent of the ovum, abortion may be considered inevitable. If a portion of the ovum has been discharged, or the liquor amnii has come away, or if septic inflammation has taken place, there is no question that the abortion is inevitable, and under these circumstances attempts to prevent the expulsion of the ovum should not be employed. Especially is it reprehensible to make use of such attempts if the discharges are foul-smelling and the patient is febrile.

The most puzzling cases are those in which moderate hemorrhage takes place from the uterus, unaccompanied by uterine contractions, and when the general condition of the patient continues good. Under these circumstances it is wise to keep the patient in bed for at least some weeks, before employing measures to empty the uterus. I recall very vividly the case of a lady about three months pregnant, who, on her way from church, was taken with a hemorrhage very considerable in amount; indeed, she was fearful that a sensation would be created on the street, and so had her husband walk behind her, lest the flow should be so great as to leave a trail of blood upon the pavement. This patient was kept in bed for some weeks, the hemorrhage persisting in slight amount without other symptoms, and finally ceasing. She was delivered, at full term, of a living child. There can be no objection to temporizing under these circumstances, except that the time of the patient may be wasted through the lack of success of the method employed in preventing abortion. At the same time, too great care cannot be employed lest the persistence of bleeding, slight in amount on any one day, should eventually produce a grave anemia. Also, the temperature should be regularly taken, and other signs of infection looked for, lest an insidious infection should progress sufficiently to become serious before its recognition.

When is abortion complete? The classical maxim that the uterus should be emptied of all portions of placenta and membranes, and also of clots, both after labor and after abortion, is just as true now as when first enunciated. In abortions after the fourth month, there is usually little difficulty in determining whether or not the uterus has emptied itself, because both the fetus and the placenta have attained such size that an examination of them is of value, and besides, an exploration of the interior of the uterus, in case this should be necessary, can, as a rule, be carried out without special difficulty. During the first three months of pregnancy it is not so easy to determine whether or not abortion is complete. During the first two months, as a rule, the question is not of great importance, because nature usually takes care of the abortion without much aid from the practitioner. In certain criminal abortions, when virulent infection of the endometrium has taken place, this is not true; but in these cases other problems present themselves, and the uterus should undoubtedly be explored and thoroughly curetted to remove the infected decidua, so that the mere question of whether or not a piece of the ovum remains behind assumes a relative rather than an absolute importance. It is during the third and fourth months that the practitioner is most often in doubt as to whether abortion is complete or incomplete. Spontaneous abortions, in which the ovum is delivered entire, present

* Lusk, The Science and Art of Midwifery, 1892, p. 319.

little difficulty, as the intact ovum is ample evidence that the uterus is empty. When the fetus and the chorion (or the placenta and membranes) are delivered separately, it is not so easy to determine the question, but an examination of the mass delivered will frequently settle it. If the practitioner only sees the patient after the abortion is supposed to have taken place, if hemorrhage has ceased, and if the cervix has contracted, it is a fair inference that the abortion is complete. Persistence of the bleeding, and a patulous uterine canal, are very reliable evidences that a portion of the ovum is retained.

Unless the ovum be delivered intact, the only absolute evidence that the uterus is empty is that afforded by the finger when introduced into the uterine cavity. When there is any reasonable doubt upon this point, in abortions taking place about the fourth month, especially if the patient is not under absolute observation, it is best to settle the question by exploring the uterus under full antiseptic precautions. This can be done, as a rule, without anesthesia, and always with its aid. Two fingers or the half-hand should be introduced into the vagina, and one finger into the cavity of the uterus—the uterus itself being steadied through the abdominal wall by conjoined manipulation.

After septic abortions, when shall irrigation of the uterus be discontinued? It is universally recognized that in the treatment of abortion when infection has taken place, the uterus must be emptied of all portions of the ovum; and almost all authorities go further and advocate that the maternal decidua should be removed with a sharp curette. Following this thorough curetting of the uterus, douching of its cavity with an antiseptic solution is essential. When this method of treatment is instituted promptly, in a very large percentage of the cases it is followed by the best results. In some cases, however, and especially those in which the treatment has been instituted after considerable delay, the septic processes are not arrested before the infection extends either along the Fallopian tubes to the peritoneum, or through the lymphatics or the veins to the broad ligaments, giving rise either to localized inflammatory conditions in the pelvis, or to general peritonitis, or to septicemia. In this class of cases it is of the utmost importance that too much reliance should not be placed upon the influence of uterine irrigation. Manifestly this can do no good unless it remove septic material from the cavity of the uterus, or assist in disinfecting the endometrium. When the infectious processes have extended into the deeper portions of the uterus or entirely beyond this organ, they are no longer influenced for good by uterine irrigation. I am heartily in accord with those who believe that uterine irrigations are distinctly harmful in all cases in which inflammation has extended beyond the uterus—the manipulation necessary to irrigate the uterus having a distinctly bad effect. My own experience leads me to believe that, if the uterus has been properly cleaned out and douched in the beginning, irrigations are seldom necessary for more than one or two days, and that if continued longer than this they are a source of harm rather than of good.

After septic abortions, when shall operation per vaginam or by abdominal section be done? It is assumed that the abortion itself has been properly treated—by thoroughly emptying the uterus, by carefully curetting the endometrium and removing as much of the maternal decidua as possible with a sharp curette—and that then the uterus has been properly douched, and a pencil of iodoform, containing fifty grains, introduced. If this treatment and subsequent irrigations of the uterus with an antiseptic solution, continued over one or more days, have failed to arrest the septic inflammation, the latter, as a rule, spreads rapidly either along the Fallopian tubes or into the broad ligaments.

The proper management of this class of cases is one of the burning questions of the day; indeed, conditions have not been ripe until the immediate present to properly study this question. Clinical experience has taught what can be expected under these circumstances when the cases are left to nature assisted by non-surgical measures of treatment. A considerable percentage of the milder cases, especially in patients having a vigorous vitality, will recover either perfectly or partially. In a larger percentage, septicemia, pelvic or general peritonitis, acute purulent salpingitis, and acute cellulitis and pelvic abscess, are among the usual results.

In localized pelvic inflammation, either in the Fallopian tubes, the ovaries, the pelvic peritoneum, or the broad ligaments, the methods of treatment proper in the individual cases have been pretty well agreed upon by authorities. Proper regulation of the diet, mild purgation, the use of ice or very hot applications over the hypogastrium, the exhibition of quinine and strychnine, and the use of baths, are methods of treatment ap-

plicable in all cases. Should evidences of pus-formation present themselves, or should indications appear that the localized pelvic inflammation tends to become a general peritonitis or to give rise to septicemia, operation is indicated. Up to the immediate present, abdominal section and the removal of diseased structures, followed by irrigation and drainage, has been the accepted mode of treatment. At the present time the advocates of operation *per vaginam* will insist that this is a proper field for vaginal hysterectomy.

The class of cases concerning the treatment of which there is the most dispute just now, is that in which a septic abortion has been treated in the most approved way, including curetting and douching, and in which, in spite of this treatment and the continuance of douching for one or more days, together with the use of proper general treatment, the patient continues to go from bad to worse. The infection spreads from the uterus to the broad ligaments, or perhaps along the tubes, and the evidences of general septicemia are apparent and growing more decided. In the class of cases in question there is no attempt at the formation of an abscess, but the case tends to become one of general septicemia. It has been proposed to treat these cases by hysterectomy, either abdominal or vaginal, with drainage of the pelvis. Under the conditions laid down, I believe this practice to be eminently proper, and that it promises to save the lives of many who under the let-alone practice of the past would die. It is urged that if this doctrine receives approval, many women with septicemia after abortion will be subjected to hysterectomy without warrant. I doubt this very much, as these patients are so ill that no surgeon will desire to operate upon them, except under the conviction that in so doing the patients' chances for life are increased. The cases coming under this category are those in which the women have been violently ill from the beginning, and who either improve or die within a week after the septic symptoms appear. If operated upon at all, it must be within a few days after the onset of the symptoms.

The milder cases—those in which the type of the septic invasion is less marked and the process tends to localize itself in the pelvis—seldom require operation until the later weeks of the puerperal month. It has been proposed, however, of late, in such cases to open up the broad ligaments from the vagina, and, in cases of localized pelvic peritonitis due to salpingitis, to open up Douglas's pouch from the vagina, and to pack gauze into the region of the tubes, so as to give free drainage for the products of inflammation. This procedure is so new that experience must determine its value. If, as its advocates claim, it will lessen the necessity of sacrificing the sexual organs because of the ultimate results of inflammation, it will be a great addition to the surgery of the diseases of women.

The proper treatment of localized pus-collections in the pelvis, whether of puerperal or non-puerperal origin, is so well recognized that it is unnecessary at this time to discuss the question. The diseased structures must be removed; and in case of broad-ligament abscess, drainage must be employed.

1637 NORTH BROAD STREET.

THERAPEUTIC USES OF MESCAL BUTTONS (ANHALONIUM LEWINII).

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AND
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In September last we published* the result of our investigations to ascertain the physiological action of mescal buttons upon man. Soon after the appearance of the article, we received a letter from a gentleman in a Western State, relating his experience in the use of the drug in certain affections. We are tempted to publish the substance of this letter, as the beneficial action of the drug in the conditions mentioned is directly in accordance with what we should expect from its physiological action. We believe, also, that it suggests therapeutic uses for the mescal buttons which are of value. Our correspondent says:

> I use the tincture. I put one-fourth of a pound of buttons (hairy centre being removed) into a jar containing one pint of alcohol and one pint of water, and allow it to stand ten days or two weeks. It is then ready for use, a teaspoonful at a dose, at intervals, as the case requires.
>
> In cramps and gripings, one dose has always brought relief, and stopped pain entirely, until the influence wore off. The first trial was by my family physician upon a patient with colic, who could not take opium in any form, as it made him very sick. The doctor gave him a teaspoonful of this tincture, and it allayed all pain in ten minutes, and cured the attack. That was in 1886, and I have used it for that trouble ever since.

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*THERAPEUTIC GAZETTE, Sept. 15, 1895.

My sister, when very low and out of her head, was using chloral to quiet her, but it failed. The same physician used this remedy, and quieted her in a few minutes, and she slept well and long, and it seemed to be the turning point in her sickness, as she fully recovered. I have used it in cases where it has produced sleep, but I think the patients were exhausted, and the relief from pain permitted nature's remedy, sleep, to act. In my opinion it ordinarily produces wakefulness. It certainly has a strong quieting action, either in the form of tincture or the buttons.

A piece of the gummy or resinous part in the centre of the button, as large as a pin-head, will stop tickling in the throat (caused by a certain kind of cough) instantly. It never has failed when tried by me; repeat it as occasion requires. A few drops of the tincture on sugar will have the same effect.

The greatest accomplishment of this remedy was in a case of softening of the brain, of a year's progress. The man, large and strong physically, failed in his mind entirely, and believed that his wife was trying to kill him; he would not lie down without a flat-iron under his pillow as a weapon. He had two men and one physician with him all the time for several days. The two physicians—the one already mentioned, and his brother—began the use of opium to quiet him on Thursday at noon, using paregoric first, then laudanum, then morphine, until Sunday noon, without effect for the better; and as a last resort they tried this tincture. The man would not take any medicine except from the older brother; at 2 P.M. Sunday the latter gave a teaspoonful, leaving directions for the patient to take a dose every hour until he returned at 6 o'clock. On coming back he learned that no medicine had been taken since he left at 2. He then gave a dose every half-hour until 9 o'clock (three hours) and another at 10. At 10.30 the patient broke out in a gentle perspiration, went to sleep, and awoke at 7 o'clock Monday morning, rational and in good shape physically; and left the next day for Central Texas, his former home. Lived a few months, as the disease continued to progress, as such cases do, until death came.

My wife used to take it for nervous headaches, and it always relieved her. She has them so seldom now, and dislikes the taste so much, that she does not use it.

One can feel its effect as a stimulant almost instantly in either form—buttons or tincture. I have heard it said that it will clear the system of the effects of a drunken debauch, but do not know whether this is true. I have never taken enough to feel its influence as an intoxicant, as one dose, so far, has always relieved my pain. My experience is that it leaves one in normal condition and fresh as after natural sleep; no depression whatever.

While it is undoubtedly true in some cases, that the action of a drug when given in health is somewhat different from that of the same drug when administered in diseased conditions, it is nevertheless a fact that in the case of new remedies the results of physiological investigation indicate to us the possible therapeutic uses of the drug in hand. The fact will also commend itself to any one, that after a drug has been used for a period of years in certain conditions, with beneficial results, especially when the use of the drug and the results obtained are in accordance with the result of physiological investigation, the advisability of more extended use in the same and similar conditions is worthy of serious consideration. That the results obtained by the writer of the letter which we have given are in accordance with the physiological action of the drug, may be seen from the following summary* of our experiments upon man:

"The production of visions is the most interesting of the physiological effects of *Anhalonium Lewinii*. The visions ranged from ill defined flashes of color, to most beautiful figures, forms, landscapes, dances—in fact, there seemed to be absolutely no limit to the variety of visions which the drug could produce. They could in but few cases be seen with the eyes open, but upon closing them an ever-changing panorama appeared. The predominating feature of the visions was the color effects, although the figures, forms, etc., were in themselves sources of pleasure and admiration. Drumming, or otherwise marking regular time, enhanced the beauty and variety of the objects seen. In two cases the visions were under control of the will, and in one case they were subject to the suggestion of others. The amount of pleasure derived from the drug seemed to vary inversely with the amount of muscular depression present. The effect of the drug in the production of visions is in all probability due to stimulation of the centre of vision in the brain. The persistent ache and feeling of exhaustion in the occipital region, which was present for several days after Experiment 4, is of interest in this connection.

"In some cases no effect whatever was produced upon the reason or will of the individual. In others there was some slowness of thought and loss of power of expression, and in Experiment 2 a marked delusion. Compared with other intoxicants, however, the effect upon the mind is extremely slight.

"Dilatation of the pupil was well marked in every case, and persisted for from twelve to twenty-four hours after the drug was taken. The dilatation was accompanied by a slight loss of the power of accommodation, and consequent disturbance of vision.

"More or less depression of the muscular

*THERAPEUTIC GAZETTE, Sept. 15, 1895.

system existed in every case, and this was the first effect noticed after the drug was taken. It ranged from a feeling of lazy contentment to marked muscular depression. Susceptibility to this effect varied widely. Whether the sedative action is caused by depression of the nerve centres, peripheral nerves, or their nerve-endings, or of the muscular fibres themselves, we are at present unable to state; but from concomitant nervous effects we are inclined to the belief that it is due to depression of the nervous system, and not of the muscular fibres themselves.

"Partial anesthesia of the skin was present in three of the cases, appearing when the effects of the drug began to wear off.

"The heart action is at first rendered more slow, and somewhat weaker in quality. This is followed by a rise to the normal in quality and rapidity, which continues during the period of greatest activity of the drug. In the cases where the muscular depression was greatest, slight, if any, depression of the heart was present.

"The respiration was unaffected in all cases except one. In this it seemed to partake slightly of the general muscular depression.

"Upon the stomach the drug produced an effect which varied from a feeling of uneasiness and fullness at intervals to nausea and vomiting.

"Inability to sleep for at least twelve hours after the effects of the drug commenced to pass off, was a marked effect.

"Loss of sense of time existed in all cases.

"No constant effect upon the bowels, skin, temperature, and the amount of secretion of the various glands of the body, was found."

It should be remembered that the extreme effects mentioned—such as the production of visions, partial anesthesia of the skin, loss of sense of time—are the effects of an intoxicating dose. They would not appear, under ordinary circumstances, in the administration of the drug in proper therapeutic doses.

The use of the mescal buttons as an antispasmodic in the conditions mentioned—in abdominal pain due to colic or griping of the intestines, irritable cough due to tickling in the throat, nervous headache, and as a substitute for opium and chloral in delirium, great nervous irritability and restlessness, and in insomnia due to pain—is directly in the line of its physiological action. We found in all of our experiments that the first noticeable effect of the drug was a marked sedative and quieting effect upon the muscular system, and we believed this effect to be due to a sedative action of the drug upon the nervous system.

In addition to the uses mentioned, we would suggest the advisability of the use of mescal buttons as an antispasmodic in other conditions in which this class of remedies is indicated, such as hysterical manifestations, spasmodic asthma, convulsions.

The fact that a sense of well-being, mental exhilaration, and happy contentment follows the use of the drug, even in small doses, leads us to believe that it may prove of value as a cerebral stimulant in the treatment of depressed conditions of the mind, such as melancholia, hypochondriasis, and in some cases of neurasthenia. It possesses an advantage over opium in that its use is not followed by the unpleasant effects which often attend the use of that drug.

Mescal buttons possess a remarkable power in the production of visions of color; and on account of this property the drug is worthy of trial in the condition of color-blindness.

The conditions, then, in which it seems probable that the use of mescal buttons will produce beneficial results, are the following: In general "nervousness," nervous headache, nervous irritable cough, abdominal pain due to colic or griping of the intestines, hysterical manifestations, and in other similar affections where an antispasmodic is indicated; as a cerebral stimulant in depressed conditions of the mind—hypochondriasis, melancholia, and allied conditions; as a substitute for opium and chloral in conditions of great nervous irritabitity or restlessness, active delirium and mania, and in insomnia caused by pain; in color-blindness.

The following preparations may be used:

Tinctura Anhalonii (10 per cent.). Dose, one to two teaspoonfuls (4.00–8.00 Gm.).

Extractum Anhalonii Fluidum (100 per cent.). Dose, ten to fifteen drops (0.50–1.00 Gm.).

Pulvis Anhalonii. Dose, 0.50–1.00 Gm. (seven to fifteen grains).

[*Anhalonin.* Experiments are now in progress to determine the identity, physiological action, and dose of this alkaloid.]

The tincture should be made according to the process prescribed in the U. S. Pharmacopœia for the preparation of tinctures. It should be of 10-per-cent. strength. The fluid extract should be made 100 per cent. strength and in accordance with the method prescribed in the U. S. Pharmacopœia for the preparation of fluid extracts.

The taste of these liquid preparations is

somewhat disagreeable, unless it be disguised by a suitable vehicle, such as a mixture of fluid extract licorice and elixir yerba santa. The powdered drug is best administered in wafer paper, cachets, or capsules.

THE MESCAL PLANT AND CEREMONY.

By James Mooney,
U. S. Bureau of Ethnology.

About five years ago, while making investigations among the Kiowa Indians on behalf of the Bureau of Ethnology, the attention of the writer was directed to the ceremonial use of a plant for which were claimed wonderful medical and psychologic properties. So numerous and important are its medical applications, and so exhilarating and glorious its effect, according to the statements of the natives, that it is regarded as the vegetable incarnation of a deity, and the ceremonial eating of the plant has become the great religious rite of all the tribes of the southern plains.

The plant is a small cactus, having the general size and shape of a radish, and covered on the exposed surface with the characteristic cactus prickles. As the nomenclature of the cactus family is unsettled, its botanic name is still a matter of dispute. It was at one time called a *Mamillaria*, but this name seems now to be entirely discarded. Growing specimens in the Missouri Botanical Garden at St. Louis are labeled *Echinocactus Williamsii*, with a variety, *Lewinii*. In the Botanical Garden at Washington, growing specimens are labeled *Anhaloninm Williamsii* and *Anhalonium Lewinii*, but the botanist in charge expressed the opinion that both are the same species in different conditions of growth.* As a matter of fact, there are several varieties, probably all of the same genus, used by the Indians in a ceremonial way. The explorer Lumholtz mentions three varieties among the Tarahumari of northern Mexico (see his article in *Scribner's Magazine* for October, 1894). A different sort, from the lower Rio Grande, is used by the Kiowas and associated tribes, and a smaller variety is found among the Mescalero Apaches of eastern New Mexico. In each language it has a different name, usually referring to the prickles. Among the Kiowas it was *señi;* among the Comanches, *wokowi;* with the Mescaleros, *ho;* and with the Tarahumaris, *hikori*. The traders of the Indian Territory commonly call it mescal, although it must not be confounded with another mescal in Arizona, the *Agave*, from which the Apaches prepare an intoxicating drink. The local Mexican name upon the Rio Grande is *peyote* or *pellote*, from the old Aztec name *peyotl*.

The use of the plant for medical and religious purposes is probably as ancient as the Indian occupancy of the region over which it grows. There is evidence that the ceremonial rite was known to all the tribes from the Arkansas to the valley of Mexico, and from the Sierra Madre to the coast. The Mescalero Apaches take their name from it. Personal inquiry among the Navajos and Mokis proved that they had no knowledge of it.

In proportion as the plant was held sacred by the Indians, so it was regarded by the early missionaries as the direct invention of the devil, and the eating of the peyote was made a crime equal in enormity to the eating of human flesh. From the beginning it has been condemned without investigation, and even under the present system severe penalties have been threatened and inflicted against Indians using it or having it in their possession. Notwithstanding this, practically all the men of the Southern Plains tribes eat it habitually in the ceremony, and find no difficulty in procuring all they can pay for. In spite of its universal use and the constant assertion of the Indians that the plant is a valuable medicine and the ceremony a beautiful religious rite, no agency physician, post surgeon, missionary, or teacher—with a single exception—has ever tested the plant or witnessed the ceremony.

A detailed account of mythology, history and sacred ritual in connection with the mescal would fill a volume. Such an account, to be published eventually by the Bureau of Ethnology, the writer is now preparing, as the result of several years of field study among the Southern Plains tribes. As this article is intended primarily for medical readers, the ceremonial part will be but briefly noted here.

The ceremony occupies from twelve to fourteen hours, beginning about 9 or 10 o'clock and lasting sometimes until nearly noon the next day. Saturday night is now the time usually selected, in deference to the white man's idea of Sunday as a sacred day and a day of rest. The worshippers sit in a circle around the inside of the sacred tipi,

*Since this was written, Mr. Coville, botanist of the Agricultural Department, has made a distinct genus of the mescal plant, calling it *Lophophora Williamsii Lewinii*.

with a fire blazing in the centre. The exercises open with a prayer by the leader, who then hands each man four mescals, which he takes and eats in quick succession, first plucking out the small tuft of down from the centre. In eating, the dry mescal is first chewed in the mouth, then rolled into a large pellet between the hands, and swallowed, the man rubbing his breast and the back of his neck at the same time to aid the descent. After this first round the leader takes the rattle, while his assistant takes the drum, and together they sing the first song four times, with full voices, at the same time beating the drum and shaking the rattle with all the strength of their arms. The drum and rattle are then handed to the next couple, and so the song goes on round and round the circle —with only a break for the baptismal ceremony at midnight, and another for the daylight ceremony—until perhaps 9 o'clock the next morning. Then the instruments are passed out of the tipi, the sacred foods are eaten, and the ceremony is at an end. At midnight a vessel of water is passed around, and each takes a drink and sprinkles a few drops upon his head. Up to this hour no one has moved from his position, sitting cross-legged upon the ground and with no support for his back, but now any one is at liberty to go out and walk about for a while and return again. Few, however, do this, as it is considered a sign of weakness. The sacred food at the close of the ceremony consists of parched corn in sweetened water; rice or other boiled grain; boiled fruit, usually now prunes or dried apples; and dried meat pounded up with sugar. Every person takes a little of each, first taking a drink of water to clear his mouth.

After midnight the leader passes the mescal around again, giving to each man as many as he may call for. On this second round I have frequently seen a man call for ten and eat them one after the other as rapidly as he could chew. They continue to eat at intervals until the close. There is much spitting, and probably but little of the juice is swallowed. Every one smokes hand-made cigarettes, the smoke being regarded as a sacred incense. At intervals some fervent devotee will break out into an earnest prayer, stretching his hands out towards the fire and the sacred mescal the while. For the rest of the time, when not singing the song and handling the drum or rattle with all his strength, he sits quietly with his blanket drawn about him and his eyes fixed upon the sacred mescal in the centre, or perhaps with his eyes shut and apparently dozing. He must be instantly ready, however, when his turn comes at the song, or to make a prayer at the request of some one present, so that it is apparent the senses are always on the alert and under control of the will.

There is no preliminary preparation, such as by fasting or the sweat-bath, and supper is eaten as usual before going in. The dinner, which is given an hour or two after the ceremony, is always as elaborate a feast as the host can provide. The rest of the day is spent in gossiping, smoking, and singing the new songs, until it is time to return home. They go to bed at the usual time, and are generally up at the usual time the next morning. No salt is used in the food until the day after the ceremony.

As a rule, only men take part in the regular ceremony, but sick women and children are brought in, and, after prayers for their recovery, are allowed to eat one or more mescals prepared for them by the priest.

The mescal ceremony was first brought to public notice in a lecture delivered by the writer before the Anthropological Society of Washington, on November 3, 1891. About two years ago I brought back to Washington a large quantity of the mescal, for the purpose of having it analyzed and tested in order that the results might be incorporated in the final monograph to be published by the Bureau of Ethnology. The chemical analysis was entrusted to Prof. H. W. Wiley, of the Agricultural Department, by whom the work was assigned to Mr. Erwin Ewell of the chemical force. The experimental test was undertaken by Dr. D. W. Prentiss, medical lecturer in the Columbian University at Washington, with the collaboration of Dr. Francis P. Morgan and the efficient assistance of Mr. John W. Mitchell, who offered himself as a subject. The first results of this work were published by Drs. Prentiss and Morgan in the THERAPEUTIC GAZETTE of September 15, 1895, and the indications are that the final result will be an important addition to our materia medica list. Partial analyses, together with some experiments upon small animals, were made by a German chemist, Lewin, as early as 1888, and by Heffter in 1894.

Briefly stated, it may be said that the Indians regard the mescal as a panacea in medicine, a source of inspiration, and the key which opens to them all the glories of another

world. They consider it particularly effective in hemorrhage and consumptive diseases. For this reason the returned students from the East, who almost inevitably acquire consumption in the damp eastern climate, are usually among the staunchest defenders of the ceremony, having found by experience that the plant brings them relief.

A marked instance is the case of my Kiowa interpreter, Paul Setkopti, a man now forty-two years of age. Twenty years ago, at the close of the last unsuccessful outbreak of these tribes, he was one of sixty warriors sent as prisoners of war to Fort Marion, Florida. Here, being young and unusually intelligent, he attracted the notice of a benevolent lady from the North who taught him English and finally secured permission to take him with her to her home in New York State, where she undertook to educate him to go back as a missionary and physician to his people. But he had already contracted consumption in Florida, and during nearly the whole of his four years in New York he was stretched upon a sick-bed, racked with cough and frequent hemorrhages, until at last, as there seemed no chance for life, he was sent back, at his request, to die among his own people. He arrived completely prostrated; and, being strongly urged by his Indian friends, he ate a few mescals—with such speedy relief from the cough that he continued the practice. That was thirteen years ago, and he is still alive and in fairly good health, although he spits constantly, has occasional hemorrhages, and is not strong enough for hard labor. His mind is keen, however, and he makes an excellent interpreter, faithful above the average. He is a leader in the ceremony, and defends it in eloquent English, because, as he says, the mescal keeps him alive. He never misses an opportunity to be present at the ceremony if he can reach the place in time. It is particularly to be noted that this man, after years of training and education in a refined home for the special purpose of making him a Christian missionary and a physician in his tribe, has become an apostle of the proscribed mescal rite, on account of his personal experience of the virtues of the plant.

On one occasion, when I was present alone in a camp where they were preparing to eat mescal that night, he rode in late in the evening, through a cold drizzling rain, and told me that he had been eating mescal the previous night at a camp about twenty miles away, and hearing that they were going to eat in our camp that night and that I had no interpreter with me, he had come to stay with me and explain the ceremony. I tried my best to get him to go to bed and not to lose two nights' sleep, in addition to the exposure in the rain in his weakened condition, but all I could get for reply was: "I will stay with you." I finally persuaded him to lie down at least until he should hear the drum. On hearing the signal, about 11 o'clock at night, he came into the tipi and bent over the fire to warm himself, when he was seized with such a fit of coughing that it seemed as if his lungs would be torn to pieces. I again tried to persuade him to go back to bed, but he said: "No; I shall eat mescal, and soon I shall be all right." He then took and ate four mescals, stepped into his place, and when it was his turn then and throughout the night sang his song like the others, and came out as fresh as they in the morning, after two consecutive nights without sleep. There was no more coughing after eating the first four mescals.

The Indians frequently use the mescal in decoction, without any ritual, for fevers, headaches, and breast pains, and it is sometimes used in the same way by the Mexicans of the lower Rio Grande. I have also seen an Indian eat one between meals as a sort of tonic appetizer. The habit never develops into a mania, but is always under control.

As to its effect upon age or condition, I have seen a twelve-year-old boy, at his first initiation, eat six mescals and sit through the long night ceremony, without any worse result than a sleepiness which came over him after dinner, so that he slept all that afternoon and night until the next morning. I have seen a tottering old man, who had been a priest of the ceremony for half a century, led into the tipi by the hand like a child, eat his four mescals, and then take the rattle and sing the song in a clear voice, and repeat it as often as his turn came until morning, when he came out with the rest, so little fatigued that he was able to sit down and answer intelligently all the questions I asked. Imagine a white man of eighty years of age sitting up in a constrained position, without sleep, all night long and nearly all morning, and then being in condition to be interviewed.

As to the mental effect of the habitual use of the plant, it may be sufficient to say that the great high priest of the rite among the Comanches is Zuanah, the half-breed chief of the tribe, and any who know him at home or in Washington will admit that there is no more shrewd or capable business man in the

Southwest. On one occasion I was with him when he sat up all night leading the ceremony, eating perhaps thirty mescals. Coming out in the morning, he found two cattlemen awaiting him on important business, which occupied him and his white secretary all that afternoon; next day he was up before daylight ready for an early breakfast before starting for Texas to conclude the deal. This after eating a large quantity of the cactus and losing a night's sleep; and Zuanah is entirely too smart a man to attend to business when his brain is not in working order.

On every occasion when I have been present at the ceremony I have carefully observed the participants, sometimes as many as thirty at a time, to note the after-effects, but have seen no indication of a reaction that day or afterward. They unanimously declare that there is no reaction; which agrees with my own experience. After sitting twelve or fourteen hours in a constrained position, each in turn enacting his part several times in the course of the night, and eating from ten to possibly fifty mescals apiece, they come out bright and cheerful, eat their dinner with good appetite, and afterward sing, smoke and gossip until it is time to return home. There is no sign of fatigue or any abnormal physical or mental condition, unless it be the tendency to continue singing the songs in an undertone and beating time with the finger for a rattle for hours afterward. I am unable to say whether this is the effect of the plant or is due to pure fondness for the songs; probably it is a result of both these influences. Once after the ceremony I found myself involuntarily beating time to a song that had particularly struck my fancy. I think, however, that this was largely because I wanted to learn the song, as immediately after coming out from the tipi I had spent some time posing and photographing the company, which I could hardly have done without full control of my faculties and movements.

I know from experience that the mescal is a powerful stimulant and enables one to endure great physical strains without injurious reaction; in which respect it seems to differ from all other known stimulants. During my first all-night attendance at the ceremony I ate none, as I did not feel sure that I could keep my brain clear for observation otherwise, and the result was that from cold, numbness and exhaustion I was hardly able to stand upon my feet when it was over. Since then I have always taken three or four, and have been able to take note of all that occurred throughout the night, coming out in the morning as fresh as at the start to make pictures of the men, afterward writing, reading, or talking with my friends until bedtime. I have never felt the full mental effect of the plant, having eaten only small quantities at a time, and keeping my mind constantly tense and alert for observation. I am probably also less sensitive to such influences, from long familiarity with Indian ceremonies. I have experienced enough, however, to be satisfied that what the Indians say of the mental effect is true.

The largest number of mescals that I have eaten at one time is seven. The taste is extremely disagreeable and nauseating, and a greater number would probably cause me to vomit. The Indians say this usually happens on first eating the plant, but not afterward. I have seen it happen only on one occasion—in the case of two Kiowa soldiers who had recently returned from three years of army life and rations. They had each taken fifteen or eighteen mescals, and after vomiting returned and ate several more before the close of the ceremony.

The Indians say that no mental effect is produced by less than ten, which is probably true of the seasoned initiates. From twelve to twenty is a common number for one person in the course of the night, and many have eaten thirty or more on occasions. The man with the highest record among the Kiowas is said to have once eaten more than ninety at a single sitting, or nearly a pound and a half. I do not vouch for this, but believe it possible, as he is a recognized leader in the ceremony and powerfully built. The Indians themselves, however, admit that such a quantity is excessive and extraordinary. I have myself seen this man chew up ten, one after another, like so many lozenges, without pausing. I have never heard of any serious results from over-indulgence, and it may be that vomiting relieves the stomach in such cases.

The psychologic effect is perhaps the most interesting, as it certainly is the most wonderful, phenomenon in connection with the plant. Much of this is undoubtedly due to the ceremonial accompaniments of prayer and song, the sound of the drum and rattle, and the glare of the fire. The psychologic measure of these accompaniments can be gauged only by observation of the ceremony, but from the results of the recent experiments and from other testimony in possession of

the writer it is evident that marked psychologic effects are produced by the plant itself without any of these aids. There is a visible increase in the power of the songs after the midnight ceremony. The neophyte is constantly exhorted not to allow his eyes to wander, but to keep them fixed upon the sacred mescal in the centre of the circle.

In some of the experiments noted by Drs. Prentiss and Morgan, the subject had more or less of horrible visions and gloomy depression. As such feelings are entirely foreign to my own experience or to that of any Indian with whom I have talked, it may have been due to fear of the result. It must be remembered that the Indian is familiar with the idea from earliest childhood, and comes to it for the first time with his mind filled with pleasant anticipation. On the other hand, Drs. Prentiss and Morgan state that in nearly every case the pulse of the subject was abnormally high from excitement, even before beginning to eat. Lumholtz experienced only a nervous, wakeful effect, followed by depression and chill, after drinking some of the decoction as the Tarahumaris prepared it.

In all experiments we must consider also the difference between the Indian life, with its comparatively regular routine and freedom from worries, and the civilized life with all its stress of thought and irregularities of habit. The Indian eats on Saturday night in order that he may rest and keep quiet on Sunday, while in several of the medical experiments the patient seems to have hastily swallowed a sandwich and plunged at once into exciting action.

THE TREATMENT OF VESICAL CALCULUS IN YOUNG CHILDREN.

By Francis Patterson, M.D., Philadelphia, Pa.

(Concluded from page 809.)

STATISTICS OF THE CRUSHING OPERATION.

History.—*Lithotrites.*—The credit of the invention of the operation for crushing a stone (though not evacuating all of the fragments at a single sitting) is usually given to a Bavarian surgeon named Gruithausen, who described his operation in 1813, though a claim of priority has been advanced for two Italians who lived in the seventeenth century. The first surgeon to perform this operation on the living subject was Civiale, in 1824. He used the "trilabe"—a drill consisting of a central pin or axis and three claws; this he introduced into the bladder by way of the urethra, when the claws caught the calculus, which was then reduced to fragments by drilling holes in it in various directions. The process was thus one of drilling rather than crushing.

On this model all modern lithotrites have been constructed. In 1831, Baron Huerteloup advocated the placing of the patient on a peculiarly shaped bed, to which a vise had been attached. After the lithotrite had been introduced and the calculus caught within its jaws, the lithotrite was fixed in the vise, and the disintegration of the calculus was accomplished by the blows of a hammer applied to the handle of the instrument.

For the introduction of the "screwing process" we are indebted to Hodson, of Birmingham, while Sir William Fergusson gets the credit for the adoption of the "rack and pinion" system.

Lastly, Sir Henry Thompson adopted the cylindrical handle, which, combined with Weiss's method, whereby the sliding motion may be changed to a screwing one, is the general characteristic of all of the modern instruments.

Evacuators.—In 1845, Cornay brought to the notice of the profession his "litheretie," and thus opened the way for the invention of many ingenious forms of evacuators that have done so much towards placing litholapaxy on its present high plane of perfection. This consisted of a glass bulb, to which was attached an air-pump. The bulb was filled with liquid and attached to a two-way catheter, thus making it possible to alternately inject and empty the bladder, on the principle of pneumatic aspiration.

This apparatus differs but slightly from that of Sir Philip Crampton, of Dublin, who, one year later (1846), invented his evacuator—a large soda-water bottle, which, when exhausted of air, was applied to a catheter previously introduced into the bladder.

Then Clover designed his syringe—an india-rubber bulb and a glass reservoir, from which water was alternately pumped into and withdrawn from the bladder through a catheter.

Next came Fergusson, who tried to complete the operation at one sitting by bringing away the fragments while they were still retained within the jaws of the lithotrite. Needless to state, this method of procedure was soon abandoned, on account of the danger of producing a laceration of the urethral mucous membrane, besides causing cystitis in nearly every case.

Finally, in 1878, Professor Bigelow, of Boston, announced his famous discovery, and so made litholapaxy possible. To him and Dr. Fessenden N. Otis, of New York, must be given the credit for placing this operation in its present high position, Otis having supplied us with the proper estimate of the capabilities of the urethra as to size and power to take larger calibred instruments than one would naturally suppose, while Bigelow has shown that the bladder is tolerant of long manipulation, and thus opened the way for the immediate evacuation of the fragments.

Since its introduction in 1878 this operation has been performed many times, and a glance at the following statistics will show how great is its success:

Name of Operator.	Number of Cases.	Deaths.	Mortality. Per Cent.
Keegan*	175	4	3.0
Freyer*	152	2	1.3
Dennys*	71	3	4.2
Goldsmith*	52	2	3.8
Gimlette*	59	1	1.6
Hendley*	44	3	6.8
Cunningham*	24	..	...
Caldecott†	38	..	...
Cabot‡	241	4	1.6
Fenwick§	106	1	.9
Norfolk and Norwich Hospital‖	251	7	2.2
Total	1213	27	2.22

Thus we see that out of twelve hundred and thirteen cases there were only twenty-seven deaths, giving the small mortality of 2.22 per cent.

STATISTICS OF THE CUTTING OPERATIONS.

Lithotomy, or the operation for the removal of a calculus by cutting into the bladder, is the remaining resource in those cases in which litholapaxy has been tried and has proved a failure.

The surgeon has the choice of one of two operations—(1) perineal lithotomy, and (2) supra-pubic lithotomy (or the "high operation").

The first of these, as compared to the other, is, as a rule, to be preferred, on account of its greater safety and lower mortality; while the latter, on account of its high mortality (twelve per cent.), is only justified when the stone is of such size that its removal by litholapaxy or through the perineum is impossible.

STATISTICS OF PERINEAL LITHOTOMY.

Name of Operator.	Number of Cases.	Deaths.	Mortality. Per Cent.
Keelan*	87	..	...
Thompson†	1028	68	6.61
Cabot‡	355	11	3.1
Freyer§	132	..	...
Toy‖	163	4	2.45
Total	1765	83	4.55

It is to be remembered that Freyer's series of one hundred and thirty-two cases without a death is a most exceptional one, and is the result of a very large experience in lithotomy.

STATISTICS OF SUPRA-PUBIC LITHOTOMY.

Name of Operator.	Number of Cases.	Deaths.	Mortality. Per Cent.
Cabot**	240	29	12
Werewkin††	24	7	29.16

Sir Henry Thompson ‡‡ estimates the mortality of this operation to be about one death in four cases, while Sir William MacCormac §§ reports one hundred and thirteen cases, with a mortality of 10.5 per cent.

Thus we see that the statistical evidence clearly indicates that the perineal method is the better operation of the two, and, in fact, for a number of years it was the only operation performed on children for vesical calculus.

It is to be remembered that, notwithstanding the excellent statistics of the perineal operation, there may occur complications and sequelæ that cannot well be overlooked, and these form a very strong argument in favor of litholapaxy.

Among these may be mentioned:

1. *Failure to Enter the Bladder.*—Owing to the small amount of space at his command and to the laxity of the soft parts, the surgeon may work around in the recto-vesical space with the idea that he is in the bladder, as the sensation communicated to the hand is very much the same.

2. *Failure to Find the Calculus.*—This has

* *Lancet*, May 27, 1893, p. 1250.

† *Indian Medical Gazette*, 1886, vol. xxi, p. 161.

‡ *Journal of the American Medical Association*, Chicago, 1889, vol. xiii, p. 654.

§ *Provincial Medical Journal*, London, 1888, vol. iii, p. 654.

‖ *Journal of Cutaneous and Genito-Urinary Diseases*, April, 1893.

* *Lancet*, London, 1884, vol. ii, p. 313; *British Medical Journal*, 1887, vol. ii, p. 822.

† Practical Lithotomy and Lithotrity, p. 114.

‡ *Journal of the American Medical Association*, Chicago, 1889, vol. xiii, p. 658.

§ Litholapaxy (Modern Lithotrity), 111 Cases, p. 31.

‖ *Medical Press and Circular*, 1886, vol. ii, p. 66.

** *Journal of the American Medical Association*, 1889, vol. xiii, p. 658.

†† *Centralblatt für Chirurgie*, 1890, No. 8.

‡‡ Practical Lithotomy and Lithotrity, p. 148.

§§ *British Medical Journal*, March 19, 1887, p. 2.

happened in the hands of the best lithotomists, and is often unavoidable, for, should the calculus be small, it may have escaped with the first gush of urine following the puncture of the bladder, or, instead of this, the stone may be so encysted that its discovery will be extremely difficult, owing to the small amount of space that there is to work in.

3. Peritonitis.—This is the most frequent cause of death after this operation, and, unless great caution be observed, either a traumatic or a septic peritonitis will be produced. Failure of thorough asepsis during the operation may produce the septic form, while if the surgeon be at all rough in his manœuvres the traumatic variety may be the result.

4. Hemorrhage.—A most annoying complication is hemorrhage, which may be the result of wounding either one of the pudic vessels, the artery of the bulb, or the vessels of the corpus cavernosum. In case the latter be cut, the hemorrhage will most likely prove very difficult to check.

5. Wounding the Rectum.—In case the incision be carried too low, the rectum will be wounded, and in consequence the wound will become infected, thus greatly retarding the progress of the case.

Two most unfortunate and distressing sequelæ that may follow this operation are: (1) impotence or sterility, and (2) incontinence of urine.

Impotence or sterility has undoubtedly been the result of the perineal operation in some well authenticated cases. Thus, Tremaine* reports having performed eighteen perineal lithotomies on boys, all of whom grew up, subsequently married, and only one had issue.

In some few cases incontinence of urine is said to have resulted.

Among the complications of the suprapubic method may be mentioned—

1. Peritonitis.—Of more frequent occurrence than in the perineal operation, though due to similar causes.

2. Infiltration of Wound with Urine.—This may occur as the result of faulty drainage, the urine constantly escaping into the wound, and perhaps leading to a fatal cellulitis.

4. Failure to Get Union.—This may be the result of the infiltration of urine into the wound, and, as a consequence, a fistulous opening may persist for many months.

When the results, sequelæ, and complications of the three operations are contrasted, it seems to be clearly shown that litholapaxy is by far the most desirable procedure.

MODERN TECHNIQUE.

The diagnosis of vesical calculus having been made, the first thing to do is to decide on the date of operation. Children require but slight preparatory treatment, but it is better to give them a milk diet for the twenty-four hours preceding operation, and to move their bowels on the morning of the operation.

The patient, having been thoroughly anesthetized, is placed on a hard mattress, the hips slightly elevated, and the thighs separated so that there is a space of about twelve inches between the knees.

The anesthesia should be complete or else the abdominal muscles will not be fully relaxed, and thus it will be impossible to proceed with the operation.

In case the patient has lately passed his urine, the bladder should be moderately distended with not more than four ounces of tepid sterile water or boracic-acid solution (ten grains to one fluidounce). The operation is usually divided into three stages: 1, the introduction of the lithotrite; 2, the seizing and crushing of the calculus; 3, the evacuation of the fragments,—and these will now be described in detail.

Before beginning the first stage of the operation the surgeon should again assure himself of the presence of the calculus by introducing a sound. If the calculus be not found, the operation should, of course, be abandoned.

Having demonstrated the presence of the calculus, the surgeon should proceed with the first stage of the operation, which consists in:

The Introduction of the Lithotrite.—Having roughly estimated the size of the urethra, the surgeon selects his lithotrite, and takes his position between the patient's thighs or else on either side, standing or sitting, as his fancy may direct. The lithotrite — which, of course, has been thoroughly sterilized, warmed, and oiled—is taken in either hand, as most convenient, and held lightly in a direction about parallel to the long axis of the patient's body. It is then introduced by one hand into the meatus, while with the other the penis is slowly drawn forward over the instrument, which should be allowed to glide in of its own weight, no force being permissible in its introduction. The lithotrite should be held in a vertical direction until the urethral

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* *Journal of the American Medical Association*, 1889, vol. xiii, p. 65.

bulbo-membranous junction is reached, when the handle should be depressed between the patient's thighs, and it will then pass easily into the bladder.

It is to be remembered that the lithotrite is to be withdrawn from the bladder and reintroduced just as few times as possible; also that no force should be used in its introduction.

The lithotrite being now in the bladder, the next thing to do is to proceed with the second step of the operation, which is—

The Finding and Crushing of the Calculus.—There are two methods of finding the calculus: Heurteloup's and Civiale's. Heurteloup's method consists in depressing the base of the bladder with the lithotrite, drawing back the male blade, and then giving the handle of the instrument a tap or jerk, so as to cause the calculus to fall within the jaws. Civiale's method, which is better, consists in alternately opening and closing the lithotrite in every portion of the bladder, thoroughly searching the cavity until the calculus falls within the jaws of the lithotrite, which should then be locked. Before crushing the calculus the lithotrite should be slightly rotated, so as to make sure that none of the vesical mucous membrane is included in its grasp. Having made sure of this last, the lithotrite is brought into the centre of the bladder and the stone crushed by rotating the handle of the instrument. The surgeon, having assured himself that he has thoroughly crushed the calculus that was in the jaws of the lithotrite, continues his systematic search for other calculi or fragments that have been broken off and are of too great size to pass through the evacuator.

Being satisfied that all of the calculus or calculi have been well crushed, the lithotrite is withdrawn and the last step of the operation is undertaken.

The Evacuation of the Fragments.—The surgeon, having decided upon one of the many evacuators at his command, proceeds to introduce the evacuating-tube (which is really nothing more than a hard catheter with a stopcock at one end) into the bladder. The evacuator is then completely filled with boracic-acid solution (ten grains to one fluid-ounce)—air being carefully excluded—and attached to the tube previously inserted into the bladder; the stopcock is turned, and by alternating pressure on the rubber bulb the fluid is injected, the return flow bringing with it the fragments, which, by their own weight, sink into the reservoir below, from which they may be subsequently collected and weighed.

Too much time cannot be spent in making sure that the bladder has been entirely washed out, for, if such be not the case, a cystitis may result, or the fragments may serve as a nucleus for the deposit of calculous material and thus cause recurrence.

The after-treatment of litholapaxy is extremely simple. A poultice should be applied over the bladder for the hours following the operation, the boy should be confined to bed for the next two days on a milk diet, and the urine rendered alkaline by small doses of salol.

The complications that may arise are only two in number, and should they occur are of small moment.

1. A fragment may lodge in the urethra. This may happen as the result of a fragment lodging in the eye of the evacuator and on its withdrawal from the bladder lodging in the urethra. Should this happen, its removal is usually an easy matter. Several years ago I had the opportunity of seeing this accident happen to a patient on whom Dr. J. William White was operating. The fragment was removed without any difficulty by means of a pair of urethral forceps.

2. The lithotrite may become broken in the bladder. This most annoying accident is usually the result of faulty manufacture, or of the employment of an excessive amount of force in an attempt to crush a hard stone. This accident happened to Sir Henry Thompson, but did not lead to serious consequences, as he successfully removed the fragment by an operation on the following day.

Some surgeons have claimed that urethral fever is a frequent sequel of litholapaxy, but with careful asepsis and gentle manipulation it should rarely occur.

SIZES AND PATTERNS OF LITHOTRITES AND EVACUATORS USED IN CHILDREN.

LITHOTRITES.—Many good lithotrites are on the market, and can be obtained of sufficiently small size. Among the best are Bigelow's, Keegan's, Keyes's, Teevan's, Thompson's, and last, but by no means least, Forbes's, which is the very best lithotrite on the market to-day. These different instruments will now be considered.*

Bigelow's.—The distinguishing features of this instrument are its elongated handle,

*My thanks are due to Messrs. George Tiemann & Co., of New York, for their kindness in furnishing me with full descriptions of the following lithotrites and evacuators.

shaped to fit the hand, and made of vulcanite; its method of locking, which is done by a quarter revolution of the cover; and its blades, the female one having a blunted point, while the male blade is deeply notched and provided with a spur to assist in preventing impaction.

Keegan's.—This lithotrite is made by Tiemann & Co. especially for children. It is very similar in every way to Thompson's, which will be described later.

Keyes's.—The handle is round and milled with small knobs to assist in securing a firm grasp. It is locked by a button, one being placed on the upper and one on the lower side of the cover. They may be worked either separately or together. The jaws are completely fenestrated. The cutting surface of the male blade is corrugated.

Teevan's.—The handle is very similar in appearance to Keyes's, except that it has no knobs. The instrument is locked by moving the vertical slide on the upper side.

Thompson's.—The handle is exactly similar to Keyes's, and the only difference is in the method of locking. The locking and changing of the two actions is governed by a screw on the upper surface of the cover.

Forbes's.—This is the best lithotrite on the market to-day. The following synopsis of construction is kindly furnished to me by Mr. John Sims Forbes, its inventor:

Steel Sound.

Thompson's Searcher.

Civiale's Lithotriptor.

1. Designed with the view of meeting, first, the anatomical conditions; second, conforming to the laws of mechanics, special attention being given to the economic disposition of material.

2. Double curve, permitting easy introduction, giving greater strength to the female shaft and jaw, and better support to resist side movement of the male jaw.

3. Elliptic cross-section of the shaft, to give greater breadth of septum, prevent side movement of the male jaw, and be of minimum circumference.

4. The female jaw made flat in a fore-and-aft direction, to take up a minimum amount of room in the bladder.

Fergusson's Lithotrite.

Thompson's Lithotrite.

5. Angular undercut slot or V-groove, to prevent the male blade from rising out of the female shaft and to bind the two closer together under strain.

6. Concave shape of the female proximal surface, to prevent the calculus slipping out, as well as to drive it down to the lower part of the curve and so gain strength for the female jaw.

7. Large clearance between the outside of the male jaw and the inside of the female jaw, to prevent injury to the bladder and impaction.

8. All exposed edges and points of both jaws, male and female, gently rounded to prevent injury to the bladder.

9. All internal corners rounded to avoid starting cracks.

10. Shape of the male proximal surface strategic,—*i. e.*, best adapted to more easily penetrate a calculus, to keep fragments from flying, and to clear itself, to prevent impaction.

11. Plea for the slow thread (strain on the instrument and work done by operator reduced to a minimum, and time gained).

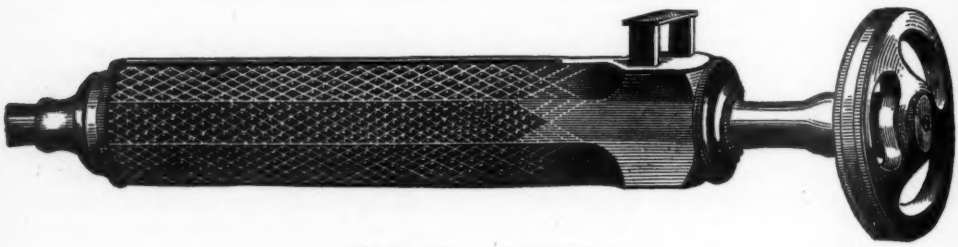
12. Plea for the large screw-handle; it is not too large, because few men can break an instrument with it; moreover, the instrument as constructed will break any calculus before it is injured itself. Metallic, hollow, and very light.

13. Interrupted screw-mechanism. It is stronger, less complicated, and easier to operate.

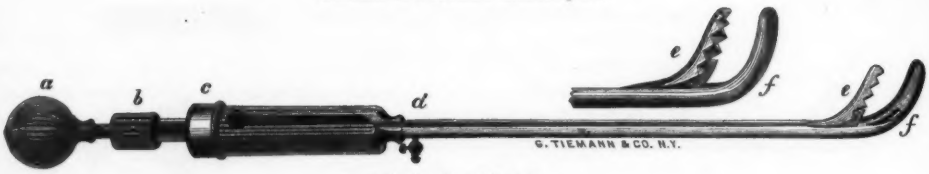
14. Cylindrical handle, similar to Bigelow's, and of proper size to allow of holding tightly.

15. Power-recording mechanism in screw-handle, to measure strain on lithotrite and crushing resistance of calculus.

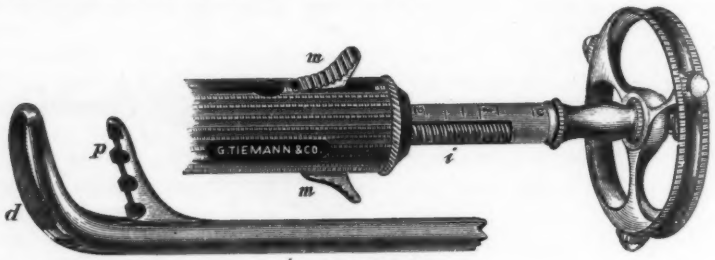
16. The size of the instrument is one and



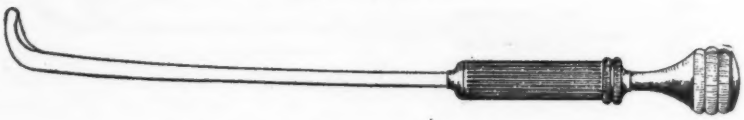
Handle of Teevan's Lithotriptor.



Bigelow's Lithotrite.



Keyes's Lithotrite.

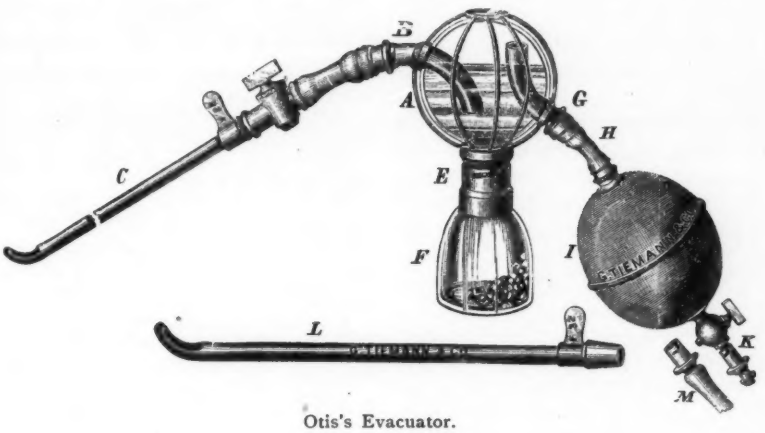


Forbes's Lithotrite.

three-quarter inches shorter than the Bigelow of equal calibre and opening, and five-eighths of an inch longer than Thompson's of equal calibre and opening.

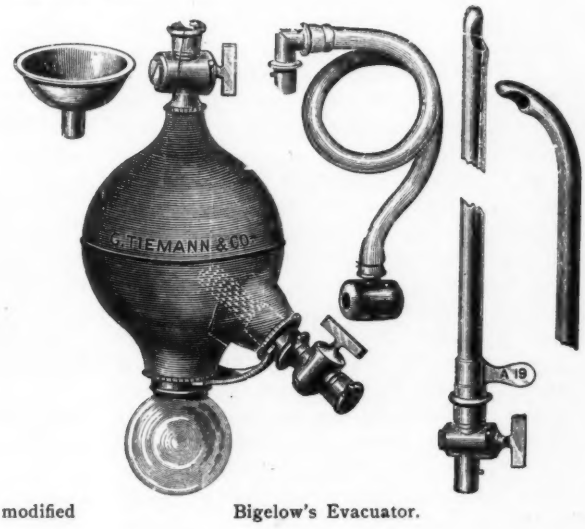
17. The weight of this instrument is the same as Bigelow's and a trifle more than Thompson's of equal calibre and opening.

Thus we clearly see how great the advantages of this instrument are as compared with other makes.



Otis's Evacuator.

Sir Henry Thompson's latest Evacuator, modified by Weiss.



Bigelow's Evacuator.

EVACUATORS.—The three best known evacuators on the market to-day are Bigelow's, Otis's, and Thompson's. Though differing somewhat in construction, their principle of action is similar.

Bigelow's consists of an elastic bulb, a glass receiver, and a tube, fitted with a stopcock, to attach to the evacuating catheter, which is previously placed in the bladder. Within the bulb is a strainer, to prevent the return of fragments to the bladder.

Otis's.—This consists of a glass bulb, to the under surface of which is attached a short bottle, which is the reservoir. Into the side of the bulb a metal tube is inserted, the end of which is for attachment to the evacuating catheter. Directly opposite this another metal tube leaves the bulb to be attached to a flexible tube, to which is attached an india-rubber bulb, which furnishes the power.

Thompson's consists of a metal cylinder, to the bottom of which is attached a glass bulb to receive the fragments. Two tubes leave the cylinder—the one in front for attachment to the evacuating catheter; the other behind, to the india-rubber bulb, which furnishes the power.

It seems, after due consideration of the merits of these evacuators, that better results are to be obtained by the use of Bigelow's, which, in practice, seems to be the best instrument.

CONCLUSION.

After a careful consideration of the statistical evidence that has been presented of the various methods of treatment of vesical calculus in children, it seems clear that litholapaxy is by far the best operation, for the following reasons:

1. It has a lower mortality. Of course, this is the first thing to be considered in any operation, and as that of litholapaxy is only a little over two per cent., while the perineal operation has a mortality of over four per cent. and the high operation one of over twelve per cent., litholapaxy should be given the preference.

2. It is attended by fewer complications than the cutting operation. How much greater the risks of the cutting operation are as compared with the crushing method, has already been alluded to in previous chapters, so the latter method should be given the preference *per se.*

3. There is no danger of emasculation. As already pointed out, this is one of the dangers of the perineal operation and cannot well be disregarded.

4. Period of Convalescence Less.—Mr. Keegan* has found, as the result of his large experience in the Hospital of India, that from fifteen to seventeen days were required for the healing of the wound after lithotomy, while the child was usually perfectly well two days after the crushing operation, and was confined to the hospital for the following three days only for purposes of further observation. Allen,† of Ohio, has had practically a similar experience. He found that 17.6 days was the time required for convalescence from lithotomy, while litholapaxy only took 5.7 days.

5. No Danger of the Formation of a Urinary Fistula, and its Constant Danger and Annoyance.—If the drainage be bad or the vitality of the parts be low, this unfortunate condition may follow lithotomy, perhaps eventually causing death by peritonitis. This is a great danger, and therefore a strong argument in favor of litholapaxy.

**Lancet*, London, 1886, vol. ii, p. 1168.

†*Journal of the American Medical Association*, 1889, vol. xiii, p. 65.

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UNUSUAL IRRITATION FOLLOWING THE LOCAL APPLICATION OF IODOFORM.

BY J. ABBOTT CANTRELL, M.D.,

Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Dermatologist to the Philadelphia Hospital, the Southern Dispensary, and the Frederick Douglass Memorial Hospital, Philadelphia.

The following case presented itself at my clinical service on the 16th of October, 1895, and as it exhibited somewhat unusual symptoms I give it for what it is worth:

Male, aged forty years, presented himself at the clinical service of the Philadelphia Polyclinic, showing several spots of syphilitic ulceration upon the right forearm. The larger lesion occupied the greater portion of the extensor surface in its upper two-thirds, while the smaller was located directly above the styloid process of the radius, and was about the size of a nickel five-cent piece. The man, following his own judgment in the treatment of these conditions, applied an ointment of ordinary zinc oxide which carried a portion of iodoform. This was prepared by some druggist of his acquaintance, and the proportion of the irritating remedy could not be ascertained. After applying the ointment frequently during the three days before his visit to the clinic, he noticed that the parts were worse than before this application, and consequently became frightened, thus giving us the opportunity of witnessing the condition. Upon close examination the larger patch was found to show a slight inflammation around its edges, while the centre, which was the cicatricial condition left after former ulceration, presented a higher grade of inflammation, which was evidenced by the formation of small and large vesicles or blebs which had not ruptured. The whole patch showed the peculiar redness indicative of syphilitic infiltration.

The lower and smaller patch gave the impression of a much greater degree of irritation, and although the ulcer itself was only about the size of an ordinary five-cent piece, the inflammation had extended over an area having a diameter of two and a half inches. The lesions produced by this irritating ointment were vesicles, and of innumerable quantity and closely congregated. They resembled the lesions usually witnessed in ordinary ivy-poisoning, in that the appearance closely approached the boiled-sago grain character of the vesicles of the latter affection. The inflammation intermingling in the patch looked very much like that met with in erysipelas, while that on the edge gave the impression of the same condition to a much greater extent, although the characteristic hardiness of this disease, as well as any tendency to a rise of temperature, was not apparent. These lesions had not ruptured, as a rule, but several had discharged their contents, which were of a somewhat purulent character. The ulcer itself did not show any apparent acquiescence in the condition which surrounded it. To the touch the patch seemed superficial, and there was no apparent tendency to deeper infiltration.

315 SOUTH EIGHTEENTH STREET.

The Therapeutic Gazette

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AND
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SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

THE TREATMENT OF GALL-STONES.

In the endeavor to render our treatment of gall-stones rational, we naturally study the causes which induce their formation and the manner in which we can expel those stones which have formed before the case has come under proper care or in spite of any preventive measures which we may have attempted. Unfortunately, we are met at the very beginning of our study by the fact that the physiologist and pathologist have not as yet discovered the exact characteristics of the general systemic conditions which underlie their formation; but, on the other hand, experimental and clinical studies have developed a number of facts which are of great value to us. Thus, we now know that there are a number of local causes which distinctly predispose to the formation of gall-stone, and that these causes are very commonly found in that very class in which the systemic tendency to stone-formation is most marked. In the first place, a catarrhal state of the biliary passages favors the formation of gall-stone by providing an excess of mucin, with the aid of which the stone may be built; secondly, this catarrhal state is commonly associated with, or produces of itself, a diminished alkalinity of the bile, whereby the cholesterin becomes more readily precipitated, and at the same time, it would appear, causes the deposition of an abnormal amount of lime salts, brought from elsewhere in the body and passed out through the mucous membrane. This latter fact seems proved by the circumstance that bile itself contains very little lime, and that more lime is found in stones lying against markedly catarrhal mucous membranes than in stones not so situated. So far, then, we have a simple pathological process providing no less than three ingredients of stone-formation,—namely, mucin, cholesterin, and stearate, or some other salt of lime. There are still two other important factors at work,—namely, the systemic state, gouty or otherwise, which tends to stone-formation, and the stasis of the bile in its ducts, because the catarrhal process in the mucous membrane blocks its passage towards the bowel.

Recognizing these etiological factors, it now becomes our duty to oppose them, and we have the following indications to fulfill: 1. By causing a free secretion of bile to produce a rapid flow of fluid, which shall be normally liquid and probably normal in its constituents. 2. By the use of alkalies to antagonize the development of acid tendencies and to aid in the solution of mucus. 3. By regulating the diet prevent those hepatic and systemic disorders which tend to the formation of stone. 4. As catarrhal states are often due to or aided by bacterial infection, to produce intestinal asepsis as far as possible.

The normal secretion and flow of bile is best brought about by exercise of a gentle and wisely directed nature, taken continually and evenly, and particularly those forms of exercise which call into play the abdominal muscles and diaphragm or cause hepatic movements. The chief and best of these is horseback riding, or, if the patient is too feeble for this, massage should be resorted to, the hypochondrium being well but gently kneaded and rubbed daily for a considerable period of time. If the liver seems very torpid, calomel may be given in small divided doses of a fraction of a grain several times a week, or nitro-muriatic acid may be more rarely used. In other instances, where there is reason to believe that the flow is sluggish and the bile not sufficiently alkaline, that catarrh and putrefactive tendencies are present, the administration of benzoate of sodium,

or salicylate of sodium, in 10- or 20-grain doses, will result in increasing the flow, increasing the alkalinity, overcoming the catarrh, and tend to arrest intestinal putrefaction. If the catarrhal process is very marked, chloride of ammonium will act even more satisfactorily. This treatment seems especially valuable when the stones that are passed are very dark in color, indicating that much pigment and little cholesterin is present. In respect to the use of alkalies, the patient should drink freely of those mineral waters which will provide alkaline substances, such as Contrexéville, Vichy, and Kronenquelle, and it is useful in many such cases to relieve any tendency to constipation or duodenal catarrh by the administration of hot Carlsbad water before breakfast daily. In the matter of regulating the diet, all rich or fatty foods are to be prohibited. Meat should be used in moderation, preferably white meats, and green vegetables largely eaten.

The catarrhal condition, associated with marked bacterial infection, as may be evidenced by some febrile movement, is best controlled by the use of turpentine, chloroform, and ether, given internally, and accompanied by the application externally of hot poultices to the hepatic area. These poultices may or may not be fortified by mustard, and when removed should be replaced by a warm pad to prevent any chilling of the surface of the body.

Of the internal remedies just named, turpentine is the most useful, since it liquefies mucus, aids the flow of bile, and is thought by some physicians to cause the expulsion of the stone by stimulating the walls of the ducts, and that it dissolves the stone. Further than this, its continual use seems to prevent the formation of stone. Ralfe states that it is best given as follows:

> Ol. terebinthinæ, ℥v;
> Syrup. acaciæ, f℥ ss;
> Sodii sulph. carbolat., gr. xx;
> Spt. ætheris composit., ℥xv;
> Aquæ menthæ piperitæ, q. s. f℥ j.
>
> To be taken twice or thrice a day.

We would prefer adding compound spirit of lavender instead of peppermint-water. If the mixture cannot be retained by the stomach, the turpentine may be given in capsule, and followed by a draught of milk.

Finally, a most important factor in the prevention of gall-stone formation in susceptible persons is the avoidance of exposure and wet, and, if possible, a residence in a sunny climate during winter months.

BICHROMATE OF POTASSIUM IN DYSPEPSIA.

We have from time to time in the editorial columns of the THERAPEUTIC GAZETTE spoken of the various treatments proper for indigestion, or dyspepsia as it is improperly called, recommending recently, it will be remembered, a mixture containing chloral and hyposulphite of sodium, and, still further back, one of nitrate of silver and hyoscyamus. We wish now to call attention to a method introduced by Fraser,—namely, of administering small doses of bichromate of potassium in gastric disorders. The doses which he considers best vary from $\frac{1}{12}$ to $\frac{1}{8}$ grain, taken three times a day upon an empty stomach an hour or so before meals. It is best administered in pill or solution, but in the latter case it is better to add some flavoring substance which will somewhat disguise the disagreeable taste of the drug. Fraser claims that pain, nausea, vomiting, and gastric tenderness may speedily be relieved by the use of this drug. In acute gastric ulcer, with vomiting of blood, his experience has not been favorable to its employment, it having no effect whatever upon the hemorrhage, so far as he could determine. In all probability the bichromate of potassium exerts its most desirable effects where an antiseptic influence is desired, as it possesses strong antiputrefactive power. Fraser also believes that it exerts an analgesic action in the stomach. We should be glad to hear from our readers should they, upon trying this treatment, find it of any value.

THE CONTROL OF HEMORRHAGE IN "BLEEDERS."

It is hard to imagine a more shocking discovery for the surgeon than the fact that he has operated upon a "bleeder." The ordinary methods of controlling hemorrhage are of so little avail in these cases as to be practically capable of producing more harm than good, and a minor surgical operation, from which the patient expected to recover in a few hours, may for this reason cost him his life.

There are two methods which we think should be relied upon, or at least tried, under these peculiar circumstances, as they are the only ones, so far as we know, which rest upon a rational basis and at the same time have a certain amount of practical experience to endorse them. One of these is, covering the

involved surface with lint which has been wrung out of a strong solution of alum, or, where the bleeding is from an extremity, to immerse the part in a saturated solution of this drug.

The second and perhaps more promising method is the internal use of calcium chloride for its influence upon coagulation of the blood, as has been chiefly recommended by Wright, of England, who has proved, it will be remembered, that this substance increases the coagulability of blood, not only in animals, but also in man. Thus, he has stopped bleeding and increased the coagulability of blood in his own case and in that of a medical friend, and he has reported several cases of hemophilia in which good results followed the use of it, even although these cases were hereditary hemophilics.

THE INDEX MEDICUS, THE ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES, AND MR. GEORGE S. DAVIS.

The medical profession is to be congratulated upon the fact that a sufficient number of subscribers at $25 a year has been obtained to continue the *Index Medicus*.

Almost the first, if not the first, physician to offer to subscribe $25 a year for the continuance of the *Index*, was Dr. Charles E. Sajous, the editor-in-chief of the *Annual of the Universal Medical Sciences*, who wrote a letter from his office in Paris making this offer and urging the profession to join with him in resuscitating the *Index*. We learn, much to our regret, that some unprincipled book-canvassers have attempted to circulate the report that the *Annual of the Universal Medical Sciences* is in danger of discontinuance, and that Dr. Sajous has been writing letters in a frantic endeavor to keep it on its feet. On the contrary, the *Annual of the Universal Medical Sciences*, which is an invaluable publication, is more appreciated, and therefore in better shape financially and otherwise, than ever before.

It is interesting to note in this connection that on November 30 a dinner was given in Philadelphia to Dr. John S. Billings, one of the editors of the *Index Medicus* and the compiler of the Index Catalogue of the Library of the Surgeon-General's Office, by a large number of prominent medical men from various points throughout the United States, who had subscribed to a purse of $10,000 as an evidence of their appreciation of Dr. Billings's self-sacrificing efforts in the cause of medical literature. After the check had been presented to Dr. Billings in presentation speeches by Dr. S. Weir Mitchell and Dr. Da Costa, several of the other guests of the evening were called upon to make remarks, and in the course of the speech of Dr. Fletcher, who has been a co-laborer with Dr. Billings ever since the War, this gentleman took the opportunity of congratulating those present upon the fact that the *Index Medicus* is to be continued, and in the course of a brief history of its publication emphasized the fact that through the generosity of its present publisher, Mr. George S. Davis, the *Index Medicus* had been maintained for years after the cost of its publication far exceeded the amounts received from subscriptions.

In consideration, too, of the efforts made by Mr. Davis in the past and present for the maintenance of this valuable work of reference, the Société Français d'Hygiène of Paris has elected Mr. Davis a Foreign Associate Member, thus emphasizing the recognition of his services to medical literature.

THE TREATMENT OF INTUSSUSCEPTION.

In a total of 1652 cases of intestinal obstruction, hernia excluded, collected by Lichtenstern and Bryant, 657, or approximately forty per cent., were due to intussusception. All authors are agreed that this form of bowel-obstruction is most frequent in the first year of life. Of Lichtenstern's 593 cases, 131 occurred before the age of twelve months and the great majority of these in the fourth, fifth and sixth months. Other statistics absolutely confirm this. After the fifth year intussusception becomes comparatively rare until the fortieth or fiftieth year, when it again increases in frequency of occurrence.

The comparative frequency of intussusception as the cause of acute intestinal obstruction makes its treatment a matter of very great interest, and it is important to note whether or not recent advances in abdominal surgery have materially modified methods of procedure.

First, as to diagnosis, it is worthy of note that though there may often occur cases in which determination of the exact cause of obstruction is impossible, in general terms, acute obstruction due to invagination is easier to diagnose than that from any other cause, hernia excluded. Pain, vomiting, blood-stained evacuations, often with diarrhea in children, tenesmus, sometimes followed by a patulous

condition of the anus due to paralysis, and tumor, are usually all present. Lichtenstern shows that a tumor can be felt either through the parietes or by rectal examination in more than half the cases. The diagnosis is much more difficult in chronic cases, the symptoms being practically those of intestinal stricture.

The prognosis of the acute cases treated expectantly is extremely bad, Martin and Hare putting the mortality at ninety per cent., Lichtenstern at seventy-three per cent. The usual cause of death in children is exhaustion and inanition; in adults, perforations and resultant peritonitis are of frequent occurrence.

As to treatment, Martin and Hare (Fiske Fund Prize Dissertation, No. 40) close their chapter written five years ago as follows:

"Heretofore abdominal section has been considered as a last resort, to be attempted after days spent in repeated and ineffectual efforts at reduction by small enemata, by air or gas insufflation, by inversion and shaking, by, at times, full doses of purgatives, or pounds of metallic mercury; when the patient's strength was far spent, and inevitable and immediate death was staring him in the face.

"Under these circumstances it is obviously unfair to compare the statistics of operative cases with those treated expectantly, yet the mortality against the surgeon is but little higher (less than two per cent.). Given an equal number of cases treated, on the one hand expectantly, on the other hand by immediate operation, it would be hard to find an abdominal surgeon who doubts that his percentage of success would justify his methods. Considering the class of cases in which section has been employed, any percentage of success would be encouraging; if resorted to when all conditions are favorable—that is, immediately after one thorough effort to accomplish reduction without operation—we believe that the percentage of recovery will be so high that even the most conservative will be disposed to recommend it.

"While it is granted that there are certain cases in which disinvagination cannot be effected, and in which nature frequently accomplishes a spontaneous cure by sloughing, it must be remembered that this form of cure is very rare in young children, and that over forty per cent. of cases thus terminating subsequently perish from the direct effects of the invagination and following necrosis. In those cases where the severity of the symptoms and the amount of obstruction denote much strangulation, and which have not been seen for several days from the onset of the attack, we believe that section should be the first resort.

"Abdominal section, then, should follow immediately upon the failure to reduce. The incision should be over the tumor if one is demonstrable, or, in the absence of this sign, in the middle line of the body, below the umbilicus. The regions of preference should be searched, and, the invagination being found, an effort at reduction should be made; not by pulling upon the intussusception, but by grasping the tumor at its lowest part and, by gentle, continued pressure, reducing the venous congestion; then by traction from above and pressure applied from below, the reduction will be much facilitated. If adhesions have formed about the neck, a probe passed between the entering and returning layer, and carried around the circumference of the bowel, may enable the surgeon to break them up and thus accomplish reduction which would otherwise be impossible. If the adhesions are so tight that restoration of the gut to its normal condition is impossible, we believe that, unless the patient's strength is exceptionally well preserved, an enterostomy and formation of an artificial anus will afford the best hope of recovery, since it has been shown that even where the cause of obstruction is not removed, the relief afforded by this operation frequently enables spontaneous resolution to take place subsequently, with complete restoration of the continuity of the alimentary canal. If gangrene has set in and is involving the intussuscipiens, resection, with the formation of an artificial anus to be subsequently closed by plastic operation, or, in exceptional cases, lateral approximation, will be indicated.

"Of drugs, but two should be used in invagination, namely, opium and belladonna."

In marked contrast to this is the Section on Intestinal Intussusception, representing, according to the index, a brief but sufficient account of additions to the surgical knowledge on this topic brought forward during the last seven years and found in the supplementary volume of the International Encyclopædia of Surgery:

"The most interesting and important addition which has been made to our knowledge of intussusception is the strong plea which has lately been advanced by Mr. Jonathan Hutchinson—a surgeon whose opinions are always to be listened to with the highest respect—in behalf of systematic kneading and manipulation, which he calls abdominal

taxis, in the management of this affection. He records a number of cases in which this mode of treatment proved successful, and urges that taxis for intussusception should be regarded as presenting equal claims to those of the taxis for ordinary strangulated hernia.

" . . . . Hence it seems to me that the taxis should only be attempted in the early stages of intussusception—for instance, during the first four days—or in those comparatively rare cases, such as that above narrated, in which the absence of bloody and mucous discharge shows that the disease is only subacute in character. When the symptoms show that the invaginated part is very tightly grasped, and when the duration of the case renders it probable that adhesions have already formed, it is, I have no doubt, safer to place the patient under the influence of opium and await the possibility of cure by spontaneous separation of the intussusceptum."

Fortunately, however, most surgeons will scarcely accept such statements as representing all that science has lately contributed to the treatment of intussusception.

Rydygier (*Deut. Zeit. f. Chir.*, bd. 42, heft 2, 1895), on the basis of a statistical study of eighty-six cases collected by himself, together with Braun's sixty-six cases reported ten years ago, announces the following conclusions, and with these nearly every surgeon who is willing to accept the results of recent abdominal work will be in accord. They are as follows:

In cases of acute invagination, operation should be performed immediately when one thorough trial of other means of reduction has failed. Having opened the belly, the best method of procedure is to disinvaginate if this is possible without use of great force. If there are certain areas in regard to the vitality of which there is reasonable doubt, these areas should either be kept without the peritoneal cavity or should be walled off from this cavity by iodoform-gauze packing.

When disinvagination is not possible, the intussusceptum should be resected. This is most safely accomplished as follows: a continuous suture is applied to the neck of the intussusception, thus securing the sheath to the gut just above the point where it begins to form the intussusceptum. This suture effectually prevents disinvagination. The suture should bring in apposition perfectly sound peritoneal surfaces. About two inches below the neck a long incision is made in the sheath, exposing the intussusceptum. This cut is made long enough to draw the intussusceptum out through it, unless the latter be extremely large. The intussusceptum is now divided transversely for two-thirds of its circumference. Through this opening is passed the index finger of the left hand, to make sure that the canal is patulous and to render easy proper placing of the next sutures. Four sutures are now passed through the whole thickness of both layers of bowel, the last one being so arranged that it stops bleeding from the mesenteric vessels. The intussusceptum is cut entirely off and delivered through the opening in the gut, or, if this is impossible, is allowed to pass down the bowel or when practicable is extracted through the anus. The longitudinal opening in the sheath is then closed by a Lembert suture.

Rydygier further continues his conclusions with the statement that resection of the whole invagination is indicated when the sheath is so infiltrated or so nearly gangrenous that perforation is threatened; and finally, that formation of a preternatural anus or enteroanastomosis should never be performed excepting in cases of such extreme collapse that no other procedure would be justifiable. In cases of chronic invagination he concludes that treatment should be conducted on general therapeutic principles until acute symptoms have subsided; that the moment this point is reached, *i. e.* in the intervals between acute obstructive attacks, operation should be undertaken, and that when the belly is opened the first attempt should be to disinvaginate,—this failing, resection of the intussusceptum should be the method of choice.

GONOCOCCI IN THE CERVICAL SECRETIONS OF APPARENTLY HEALTHY PROSTITUTES.

Kopytowski (*Archiv für Dermatologie und Syphilis*, bd. xxxii, heft 3), on the basis of a number of extensive clinical experiments, finds that often after most careful police inspection gonococci are found in the secretion of the cervical canal of women who are pronounced by the police doctors to be absolutely healthy, and that long after the apparent cure of an acute gonorrhea, gonococci still linger in this region. Hence he argues the futility of an examination as at present conducted, and the absolute impossibility of determining without elaborate bacteriological investigations the presence or absence of gonorrheal infection in the case of a woman.

Reports on Therapeutic Progress

LACTOPHENIN: ANTIPYRETIC AND ANALGESIC.

In Sajous's *Annual of the Universal Medical Sciences* (1895), Dr. Dujardin-Beaumetz, editor of the department of Therapeutics (vol. v, A, page 92), gives this estimate of the therapeutic availability of lactophenin:

Lactophenin is allied to phenacetin both chemically and therapeutically. It is a crystalline powder, with a somewhat bitter taste, and is very slightly soluble in water. According to Landowski, who tried it in Proust's clinic, it acts precisely like phenacetin when both are given in 0.6 gramme (9¼ grains) doses, but 1 gramme (15½ grains) of lactophenin produces a decided hypnotic effect. Von Jaksch, who employed it in doses of from ½ to 1 gramme (7¾ to 15½ grains) in typhoid fever, found that it always rapidly reduced the temperature, and also that it exercised a calming effect when there was restlessness or delirium. Jaquet, of Basel, employed it in pneumonia, erysipelas, and influenza, and found it nearly always reduced the temperature rapidly and for some considerable time without any serious symptoms being produced; especially there was never any weakness of the heart's action or of respiration, nor any dyspnea or collapse observed, and the pulse, as a rule, became fuller and slower, while the breathing remained unaffected. The great advantage of this drug appeared to be its calming, hypnotic effect, together with its reduction of the fever. The hypnotic effect of lactophenin, Jaquet estimates as intermediate between that of sulphonal and that of urethane. The usual dose employed by him was from 0.5 to 0.7 gramme. H. Strauss tried the drug as an antipyretic in twenty-five cases, finding it preferable to any other on account of its harmless nature. In typhoid fever it seemed to have a special calmative effect on the nervous system. Roth used it in several cases of acute rheumatism, finding it equal to the salicylates. The pain and swelling disappeared within twenty-four to forty-eight hours, the temperature continued low, and no unpleasant effects were observed, though large doses were given.

ON THE INFLUENCE OF ETHER UPON THE KIDNEYS.

This very important subject is discussed by Weir in the *New York Medical Journal* of Nov. 16, 1895.

With the increased use of ether as an anesthetic, notably in England and on the Continent, the comparison between its effect and its safety with those of chloroform has been more studied, until now the differences in favor of ether are sharply defined and clearly marked. In 1890 Weir entered the discussion as to whether etherization injuriously affected the kidneys, and presented then a series of forty well observed cases from which it appeared that where the kidneys were previously healthy no disturbance in the renal function was observed in seventy-five per cent. of the cases; or, reversing the statement, that only in about one quarter of the instances a very slight and transitory trace of albumin was found to be present within a few hours after the completion of the anesthesia.

His conclusions, however, were felt to be based on too limited an experience to be of much value; but other and more elaborately conducted observations have only confirmed his impressions. Even before this, Feuter, of Berne, reported conclusions based on one hundred and fifty clinical cases and thirteen experimental observations in animals on ether narcosis. These were:

1. That ether has no perceptible effect upon the healthy kidneys of animals, who, moreover, are more susceptible than mankind to its influences.

2. That it is not dangerous in persons whose kidneys are slightly diseased.

3. That subsequent disturbances in the circulation of the kidneys, when met with, are very transitory and quickly disappear.

The rapid extension of the use of ether in Europe is best shown in the large total presented by Garre of 350,000 cases with but twenty-five deaths (or one in 14,000 exhibitions), which warrants one in digressing a moment to compare this with 134,000 chloroformizations with forty-six deaths, or one death in about 3000 cases. These facts, taken with the careful observations of the actions and complications of ether anesthesia given by Juillard, Poncet, Ollier, and by the German Surgical Association, have placed much that is of interest and of positiveness at our command.

The author then rapidly reviews the main facts to be deduced from the articles of Garre, already quoted, of Angelesco, Wunderlich, Rindskopf, Wood, Bruns, Korte, and others, who have within the past year or two written ably on the subject of ether narcosis.

Butter, in five hundred cases of ether nar-

cosis, found only once albuminuria where previously none had existed. Korte, in the six hundred cases that he collected, only found six instances where albumin presented itself, where before the etherization none had been found, and he states very decidedly that, in his opinion, ether does not aggravate a damaged kidney, but that chloroform does. He also gave seven instances where albumin pre-existed, but was not increased by the etherization. Garre says that in slight pre-existing kidney trouble etherization provoked no important increase in the amount of albumin, and he declares very emphatically that he does not believe an attack of nephritis is at all likely to occur from etherization. This positive view is not entirely concurred in by some of the other observers.

Wunderlich, in a very admirable *résumé* of the subject, concludes that in an already existing case albuminuria is frequently augmented by ether narcosis; that this is twice as common in chloroform narcosis—in the proportion of 11.5 to 6.9 per cent. From chloroform, and much more seldom from ether, casts are to be found—in the proportion of 34.8 to 24.6 per cent. If cylindruria previously exists, from both ether and chloroform narcosis there is an increase to be met with, due, he believes, to an ischemia of the kidney or to a lessened blood-pressure. Casts, he thinks, are due to a direct irritation of the kidney epithelium from the action of the ether or chloroform. He adds, finally, that ether nephritis may be excluded from surgery.

In respect to the renal irritation, Wood asserts that in fifteen animals whose urine was carefully and by various processes tested as to the presence of ether, none was recognized. Yet this same observer admits that etherization in dogs produced cloudy swelling of the epithelium—which, however, he supposes to be due to the general intense congestion by some of the retrograde ether products and not to the ether itself. Wood's conclusions are that if the kidneys be healthy, the action of ether on them does not amount to much; but if they are diseased, the tendency exists to increased irritative processes.

In respect to these investigations of Wood's, the writer alludes to the criticism which Feuter made upon his own experiments upon animals, that animals are much more sensitive to the action of ether irritation upon the kidneys than mankind.

It may not be amiss to call attention to the conclusions of Bruns, lately presented, that some of the bad effects of ether on the lungs and kidneys are due to the oxidation and formation of aldehyde and other products of decomposition caused by the exposure of ether to light, and to the possible mixture of air in the ether-bottles; and he advises, to counteract these dangerous impurities in ether, that it should be enclosed in small, fully filled, light-forbidding flasks, which, until used, should be kept in a cool place. These conditions, it is hardly necessary to be remarked, were and always have been filled in the cans of ether presented to us by Squibb and other ether-manufacturers.

Angelesco has shown, what had been previously taught us by Swain in connection with chloroform, that in ether narcosis the temperature falls from seven-tenths of a degree to a full degree, with the difference that under ether there is a vaso-dilatation of the surface and under chloroform a vaso-contraction.

As perhaps throwing light upon some of the peculiarities and admitted mishaps that occur in etherization, the fact elucidated by Fayer and by Wright might be mentioned—that coagulation of the blood in the smaller vessels and capillaries is very apt to come on with imperfect oxidation. This pertains strongly to the asphyxia or partial asphyxia that we occasionally meet with in etherization.

The conclusions arrived at, therefore, are as follows: That etherization in the vast majority of cases in normal kidneys, and even in abnormal kidneys, brings about no detrimental effects; that when any evidences of abnormality present themselves they are transitory in character and not productive of harm; that elevation of temperature, which he had before thought would aggravate the work of the kidney and bring about, in conjunction with an ether narcosis, abnormal excretions, does not appear to exercise any positive influence in this respect.

CHLOROFORM ANESTHESIA PRODUCED DURING SLEEP.

GURRIERE tells us, in the *Rivista Sperimentale di Freniatria*, that he has repeated the experiments of Dolbeau, the purpose of which was to find out whether chloroform vapors could be administered to a person physiologically asleep, and whether anesthesia could thus be produced without awakening the sleeper. While Dolbeau had experimented upon individuals affected with somatic diseases, Gurriere performed his experiments upon persons who, being perfectly healthy

somatically, had passed through some mental disease but were cured so that their discharge could take place a short time after the date of the experiments.

The technique was: to begin the administration of the chloroform very cautiously; a handkerchief drenched with chloroform was first kept about three inches from the nostrils, then gradually approached; if reflex movements or wiping off the nose with the hand followed, a short interruption was made. The patients were not informed what was going to be done with them; all possible precautions were taken not to make them suspect anything.

The result of the experiments was positive in four cases out of nine examined ones. In one of the five cases with negative result it had been observed that the cause of the failure was probably too light, superficial sleep. The precaution was then taken to give this person, without his knowledge, one-twelfth grain of morphine some hours before bedtime. The chloroform narcosis was then tried again during sleep, and this time successfully, so that actually the result was positive in five out of nine cases.

The narcosis was pushed only so far as to give undoubted evidence that the sleeper was under its influence. Although it could have been done, the author did not want to reach the degree of anesthesia required for surgical operations. The limbs were perfectly relaxed; flapping the body and making noise did not awake the subjects, and only by strong shaking they finally awoke, but next morning did not remember that they had been awake in the night, and had not the least idea that chloroform had been administered to them.—*Journal of Nervous and Mental Diseases*, November, 1895.

SULPHONAL AND TRIONAL COMPARED.

WEBBER compares the action of these two drugs, in the *Boston Medical and Surgical Journal* of May 23, 1895. He points out that sulphonal is sparingly soluble in cold water and is slow in its action. Sometimes as long as two or three hours are required for it to induce sleep. So slow is it at times that patients become impatient waiting for its effect; hence it is better to give it in the evening a short time before bedtime. It is probable that the slowness of its action interferes with the induction of sleep, the patient becoming so nervous waiting for sleep that he is thoroughly aroused. The effect of a full dose, however, continues long, often producing sleep the second night, and in a few cases even the third.

Trional is much more soluble. It produces sleep much more quickly—within a few minutes. In one case the drug was taken before preparing for bed, and its effect was felt so soon that it was an effort for the patient to get into bed. Its action is less prolonged than that of sulphonal. It never produces sleep on the second night as markedly as sulphonal, though patients may sleep well the night after taking it, but not from its direct effect.

The day after taking sulphonal there may be great drowsiness. This is less likely to occur after a dose of trional, and if it does, is much less intense.

In consequence of the more rapid action of trional, some patients much prefer it to the slowly acting sulphonal. This is especially true of those who have difficulty in getting to sleep when they first go to bed. Those who suffer from this form of insomnia become impatient at their inability to sleep, and each minute finds them more restless; indeed, it is in part owing to this restless nervousness that they are unable to sleep, and for this reason they are desirous of seeing an early result from any medicine they take. To such patients it may be well to give trional.

Another class of patients have no difficulty in going to sleep when they first go to bed; but they wake in a short time and lie awake two, three, or four hours, or may have no more sleep that night. To this class sulphonal is the better drug, as it does not interfere with the first early sleep of the night, and acts later, so that the patient does not wake at midnight, as usual.

The effects of trional do not continue so long towards morning as sulphonal. It gives good refreshing sleep for four or five hours, or perhaps six; then the patient wakes and does not sleep again. In such cases it is possible that the next time a larger dose will produce a longer sleep. The effects of sulphonal are more likely to continue through the whole night until morning.

The dose of either of these drugs is 10 or 20 grains. In many cases 10 grains is sufficient, but where there has been obstinate wakefulness it is better to give more—15 or 20 grains. The writer has only very rarely given 30 grains of sulphonal. He has never had occasion to give more than 20 grains of trional; possibly not having tried it in such obstinate cases. In the case of either drug

it is better to give one sufficient dose than two or more insufficient doses.

After taking sulphonal there is not infrequently more or less cerebral heaviness and distress the next day. In a few cases the discomfort has been so great that patients have objected to taking the medicine and preferred to get along with less sleep. The writer has found much less of this unpleasant effect after trional. One patient, who refused to take sulphonal on account of this after-effect, had little or no discomfort after a dose of trional.

After 15- or even 10-grain doses of trional, slight vertigo or dizziness has been felt before sleep was induced, if the patient rose from bed; lying down caused this to cease. This is not the case after the ingestion of sulphonal. It may be well, therefore, to warn some patients not to rise after taking trional, to wait until fully ready for the night before taking it, and then to stay in bed, so as to avoid this unpleasant experience.

Sulphonal may be given in small doses, not more than 5 grains, to quiet restlessness in neurasthenia, hysteria, and mania; given three times a day and, if necessary, during the night, it will often have a most soothing effect. He has not tried trional in this way, but should not expect such an effect, as it acts so much more quickly and its action is so much less lasting.

It will be readily seen from this comparison which of these two drugs should be chosen in combating insomnia; but it must be remembered that neither is a certain cure for this distressing symptom, and that the treatment must be directed to the patient's condition and not simply to the symptom insomnia.

ABSORPTION FROM BLADDER, URETHRA, VAGINA, AND MUCOUS MEMBRANES IN GENERAL, WITH SOME EXPERIMENTS ON THE EFFECTS OF PRESSURE ON THE BLADDER.

This important subject is discussed in the *University Medical Magazine* for September, 1895, by WALSH, who states that on Nov. 27, 1893, Dr. P. Bazy, in a note presented to the Paris Academy of Medicine, in opposition to the almost unanimous opinion of physiologists, asserted that the vesical mucous membrane does absorb—almost as readily, indeed, as the cellular tissue; his experiments were made on dogs and rabbits, with prussic acid, cocaine, strychnine, curare, and pilocarpine. In November, 1894, there appeared in the journal of the Academy an article by Dr. J. Boyer and L. Guinard, impeaching the value of the results obtained by Dr. Bazy; "the impermeability of the healthy vesical epithelium," they write, "is a classic truth that was formerly much discussed, but with regard to which every one is now agreed." Their conclusions are supported by a series of experiments on dogs, which they detail.

The general impression among medical men certainly is that the bladder does not absorb. The reason for the impression can, probably, be best stated in Picard's words, that it would be absurd to think that after nature had provided a complicated mechanism for the excretion of noxious substances from the system in the kidney, she should provide a receptacle for them lower down in the urinary tract through the walls of which it would be possible for them to get back into the system once more. The subject has not been left entirely to *a priori* reasoning, however; a number of experiments have been made, and it is only surprising that a final settlement has not been reached long before this.

As early as 1824 Segalas found, after a series of experiments on dogs, "that absorption of some medicinal substances from the bladder takes place as rapidly as from the stomach." In 1862 Segalas, Jr., repeated his father's experiments on rabbits, and confirmed his conclusions. In 1867 Demarquay, and after him Hicks, from observations on the bladder in morbid conditions, asserted its absorptive power. Later in the same year Thompson denied it.

Bert and Jolyet, before the Société de Biologie de Paris in 1869, announced the results of their experiments on animals. They found that absorption does take place. In the discussion that followed, Claude Bernard and Brown-Séquard expressed agreement with their conclusions. The following year they returned to the subject in a note to the Society, and stated that, after tying off the urethra close to the bladder, absorption did not take place, hence they concluded it was the urethral and not the bladder epithelium that absorbed.

In 1868 Küss did a series of experiments, which were taken up in his laboratory a few years later by Susini and confirmed by him. They injected into the bladders of dogs just dead a solution of ferrocyanide of potassium, and then painted the peritoneal surface of the bladder with an iron salt. No blue staining appeared until from two to six hours

afterwards, unless the vesical epithelium were intentionally injured, when it appeared at once. Curiously enough, it is these experiments that are quoted by physiologists rather than the experiments of Susini, who injected potassium iodide into the bladders of living dogs and failed to find traces of it in the saliva, and who also injected the same drug and belladonna into his own bladder and failed to get either reaction or symptoms.

Alling found, as did Bert and Jolyet, that after tying the neck of the bladder he failed to get absorption, and he, too, attributed the discrepancies in experiments to the fact that it was from the urethra, not the bladder, that absorption took place.

Cazeneuve and Livom made a series of experiments of an entirely different kind. They studied dialysis through the bladder-walls by plunging a bladder full of urine into warm distilled water immediately after the death of the animal, and then testing the water around it after a suitable interval for urea. In bladders experimented upon without delay after the death of the animal, it took three or four hours for urea to pass through, but if the experiment were delayed for a short time the bladder-walls became so altered that urea was found in the water outside in a few minutes. Later, Cazeneuve, with Lépine, found, on ligating the urethra and ureters, that four centigrammes of strychnia injected through a fine canula caused no effect for ten to eighteen hours; symptoms of poisoning then developed, and the animal died.

Ashdown, in 1886, found, in a series of forty experiments on rabbits, that many medicinal substances are absorbed by the healthy vesical mucous membrane. He got absorption of strychnia, eserine, ether, chloroform, morphia, atropia, curare, hydrocyanic acid, and cyanide of potash.

Susini had failed to find iodide of potassium in the saliva; Ashdown, after injecting it into the bladder, carefully turned out a ureter and demonstrated its elimination by the kidneys. In 1892 Guyon and Albaran adopted the opinion that the vesical mucous membrane when healthy is absolutely impermeable. Finally, Duval says that, "from the physiological point of view the vesical mucous membrane is remarkable for its impermeability; it absolutely prevents resorption." He then refers to Küss's and Susini's experiments, and their failure to get a blue color with ferrocyanide in the bladder and a salt of iron on the peritoneal coat. In a note there is reference to Cazeneuve and Livom's observations on dialysis through the removed bladder-walls; these are supposed to prove that absorption does not take place.

Duval's work is looked upon as a classic in France, so that the subject of absorption from the bladder is still unsettled, and another series of experiments may do something toward its solution.

PREVENTION OF UTERINE DISEASE DUE TO CHILD-BEARING.

In the *New York Medical Record* of Sept. 21, 1895, DR. GILL WYLIE gives the following directions for the prevention of uterine disease after childbirth:

On or before the first indications of labor beginning, the patient is given a complete bath, if there is time, or, at any rate, the vulva and vagina are well scrubbed and washed with tincture of green in place of ordinary soap, and the parts washed off with 1:3000 solution of mercury bichloride. The nurse must have on a clean wash dress, and the author puts on a surgical gown; his hands and the nurse's are always washed with tincture of green soap and dipped in a solution of bichloride each time before examining the patient. During and after labor a solution of bichloride, 1 to 3000 or 4000, is used to wash off the vulva. If there is time the bowels are well moved by castor oil, and the rectum always emptied by enema. All instruments used should be sterilized by boiling, and put in a solution of 1:40 carbolic acid before being used. Any hemorrhage is checked by emptying the uterus of placenta or clots, and, if necessary, by ligation of the circular artery when the cervix is torn, or by sewing up the perineum when it is torn. Any tearing of consequence to the perineum is sewed up. After labor, except in cases complicated by severe hemorrhage or lacerations requiring sewing, the patient is made to sit up to pass water or have the bowels move. For a full week the antiseptic napkins or absorbent pads are kept over the vulva and changed every few hours as required by the discharge, and after each act of defecation or micturition the vulva is washed off by means of a Davidson syringe and solution of 1:3000 mercury bichloride. This is kept up faithfully for seven days after labor. On the sixth or seventh day the patient sits up out of bed, and on the tenth day is carefully examined as to the condition of the parts, the character of discharge, position and condi-

tion of the uterus, and to decide if any local treatment is needed to insure normal involution and prevention of subinvolution of the uterus, relaxation of the ligaments, or uterine displacement. No vaginal douches are given after labor, unless instruments have been used to deliver, or hands have been introduced into the uterus, or there is a rise of temperature or an odor to the discharge.

NITRATE OF SILVER IN EPILEPSY.

MURRAY writes to the London *Lancet* for Sept. 21, 1895, as follows:

I have read with great interest the Manchester address and the clinical lecture on "Silver and Epilepsy" by Dr. Gowers. The former is a marvellously lucid exposition of what can at present be known of the intimate physics of life, and it penetrates further into the "mist on the horizon" than anything hitherto produced. I trust that Dr. Gowers will give us another insight into the workings of his mind on this subject. If I have grasped his meaning aright, he thinks—and with reason—that while ordinary muscular contraction is (like the heat given off in ordinary combustion) due to the force set free by the union of carbon and oxygen, which in combining have parted with some portion of their minute motion, and therefore move less rapidly when combined, the amount of energy given off is the difference between the minute motion of the compound and the minute motion of the elementary atoms. He thinks that while the burning of fuel such as coal is comparable to the ordinary contraction of muscle, the violent explosion of more highly combustible matter is comparable to the violent muscular explosion of an epileptic fit.

With regard, then, to the treatment of epilepsy, it is manifest that our efforts must be directed to the removal or hindrance of this tendency to an explosive discharge in the nervous and muscular systems. Without attempting to explain how this inhibited state of the nerve centres is brought about by several remedies, I think I am justified in saying that some of them at any rate do their work by hindering this explosive union of atoms or molecules. One of these remedies —nitrate of silver—offers a fair field for study in this direction. I have often expressed the opinion that a deposit of silver in some form, probably chloride, in the molecules or submolecules of the nerve-cell and fibres so altered the polarity—*i. e.*, the explosive tendency—of the molecules as to arrest the epileptic discharge. And now comes the more accurate and more complete interpretation of Dr. Gowers, who gives us a mental picture of what actually takes place in the action of the nervous and muscular tissues when force (minute motion) is set free. He points out that the susceptibility to nervous and muscular action needs but the influence of a stimulus—*i.e.*, of "added motion"—to bring about a manifestation of the latent energy in these tissues, and that an increase of susceptibility or of stimulus—*i. e.*, added motion—may evoke an epileptic explosion. It seems to me a fair inference to suppose that a remedy which is deposited in the tissues—perhaps irrevocably deposited—may by its chemical inertia interfere by its presence with the minute motion or chemical activity of adjacent atoms and thus prevent their explosive union.

The solution of this question would be materially aided by an inquiry into the nature of the silver deposits. Do they exist permanently in the interior of the body as they do in the exposed parts? They doubtless do exist in some of the mucous membranes—in the mouth, for instance. Are there any changes of color in the nerve-tissues indicating an oxide of silver there? A microscopic, or chemical, or perhaps a spectroscopic, examination would help us to decide this question of silver deposit. As I know of no ascertained facts, I am obliged to fall back on the old-fashioned empirical resource—experience. What does experience teach us as to the use of nitrate of silver in epilepsy?

Experience has taught us two remarkable things: first, that nitrate of silver will cure epilepsy where the bromides have utterly failed; and secondly, that a patient who has subjected himself or herself to a course of silver, producing a deposit, secures a remarkable immunity from a number of small nervous ailments, such as neuralgia, gastric uneasiness with nervousness, etc. I think this latter effect throws a flood of light on the subject and corroborates the view that "the silver blunts the polarity of the nerve centres," renders them stable and less easily disturbed by outward influences, which would come under the head of Dr. Gowers's "added motion." In confirmation of these statements I must produce some "facts," or my theory will fall to the ground.

I submit the following case, which is one of several, in proof of the power of nitrate of silver to cure epilepsy. Twenty years ago I was consulted by the manager of an import-

ant railway department. He had become a confirmed epileptic, suffering from frequent and severe fits. Bromides had been fully tried in large doses by several eminent physicians. Partial relief only was obtained, and that at a great sacrifice of memory and general business alertness (I sometimes wonder whether the mere postponement of fits is worth the serious detriment which the patient suffers in these respects from bromides), and the gentleman was face to face with the resignation of a valuable appointment. I plainly put before him the alternative: Did he mind the leaden tint which would certainly follow a long course of silver, if he got rid of his fits? "Not a bit," said he; "it is a mere featherweight in the balance compared with my present heavy burden." So I put him on nitrate of silver for nine months. He had no fit after the first month of the course, and he has never had one since. His health has been much better—no small ailments,—and he bears me no grudge. I passed him the other day, and he, as he always does, lifted his hat with a grateful smile. This is in severe contrast with Dr. Gowers's patient, who jacketed his medical attendant—but then, poor fellow, he was not cured.

Now, again, a gentleman in easy circumstances has been more or less epileptic for thirty years; he has been a prey to a number of small ailments—muscular twitching, lassitude, frequent lapses of *petit mal*, combining to render his life a burden. He deliberately accepted a course of nitrate of silver, regardless of consequences, and has since reaped his reward. He is seldom out of sorts, is comparatively free from headaches, has no twitchings, and never has a trace of epilepsy, not even *petit mal*.

I might refer to several similar cases, but the above sufficiently illustrate my views. I ought to state that in this latter case the faintest touch of leaden hue was produced, and the patient was not aware of it.

With regard to the effect of nitrate of silver in minor ailments, there is no more striking illustration of it than in those cases of weak and irritable stomachs which are characterized by intense depression of spirits, apprehensions, and failure of pluck or courage. In these cases a remarkable change takes place both in the functions of the stomach and in the tone of the nerve centres of emotions. I will refer the readers of the *Lancet* to an old work, "Johnson on Indigestion," which contains many illustrations of these effects of nitrate of silver. To get the best results in these "stomach cases" the nitrate should be dissolved in distilled water and taken on an empty stomach. I think one gets a distinct local effect on the mucous membrane as well as the more remote effects on the nerve centres by giving it in this form.

I fear my rough notes will stand out in rude contrast when placed beside the refined disquisition of Dr. Gowers, but this result I may claim—that I have given a practical application of his theory, and to some extent may have confirmed his speculative views.

PREPARATION OF ANTI-RABIC SERUM.

There seems to be little fear that for some time to come those who are engaged in the working out of the details of new methods of treatment will, in spite of the fact that they are doing so much, find their occupation gone. Of this we have abundant evidence in the account of the preparation of anti-rabic serum and the method of determining its strength, by Professor Tizzoni and Dr. Cantanni, the conclusion of which appears in the *Lancet* for Sept. 23, 1895. This investigation is of special interest since, should the efficacy of the serum treatment of rabies be proved, new factors become available for consideration and application to the method as a whole, and the scope of the application of the treatment will be enormously increased.

As early as 1889, Babes and Lepp appear to have indicated the possibility of obtaining some protection against rabies by injecting the blood of an animal inoculated against rabies (by Pasteur's method) into one previously or afterwards infected by the virus. Although much work has since been carried out on the same lines, there was little practical outcome from it all until Behring, followed by Roux and Aronson, had worked out the method of treating diphtheria and tetanus by means of antitoxic serum. The experience gained by Tizzoni and his colleagues in the preparation and use of anti-tetanic serum has now, however, been applied to the treatment of rabies by a somewhat similar method; and if all the results recorded are confirmed by fuller and independent observations, there can be little doubt that a great advance has been made in the treatment of hydrophobia. Instead of carrying out the greater part of the preparation of the antidote within the body of the patient by a process of "vaccination," Tizzoni and Cantanni follow the usual plan of preparing this substance in an animal, from which it is conveyed in the blood-serum

to the animal to be treated. In place of using Pasteur's method of protective "vaccination" for the animals from which the serum is to be obtained, they, by a process of peptic digestion, attenuate the virus to be used. What the exact action of this digestion may be is as yet somewhat doubtful; whether it diminishes the activity of the poison-secreting organisms, kills them, or "attenuates" the ferment produced by them, is a subject for careful experiment. At all events, the activity of the virus is said to be so far modified that considerable doses may be injected at a comparatively early stage of the process, and animals that have been so injected withstand the action of the more virulent virus within a comparatively short period. This part of the process is carried out upon sheep, which may be "vaccinated" again and again. These animals always retain a certain immunity, which can be increased from time to time by fresh injections of virus, the activity of the serum corresponding to the amount and virulence of the virus injected. In these points the method of obtaining the serum is much like that by which the tetanus and diphtheria antitoxic serums are prepared. This serum, when mixed in definite quantity in a test-tube with a lethal dose of canine or fixed virus, and then injected into a rabbit, so neutralizes the poison that neither is there any increase in quantity of the virus, nor are the slightest signs of rabies developed, even though the animal be kept under observation for four or five months. More important still, when an inoculation with a lethal dose of the poison is made, a comparatively small quantity of the serum serves to neutralize its effect if injected at once, and even if delayed until the end of the first half of the incubation period the amount required to be given has only to be multiplied some six or eight times. In this respect the serum has great advantages over those used in the treatment of diphtheria, in which the dose has to be multiplied some twenty or one hundred times, and of tetanus, in which the increase of the dose must amount to from 1000 to 2000 times in the later stages of the incubation period. Leaving out of consideration the prophylactic properties of this serum, which could only be of use in the case of those who are constantly in contact with dogs, the success of the experiments as regards early treatment is, from a practical point of view, of very great importance. It is possible, by drying, to prepare a "permanent" form of this serum which will, if kept from air and light, remain active for a long period. It is very portable, is readily dissolved, and may be used by any one who is capable of sterilizing a subcutaneous injecting-needle and syringe. The treatment, therefore, can be commenced almost as soon as the patient has received the bite, as it is not necessary that he should leave his home or his own medical attendant, with the result—if we assume that these experiments are to be fully relied on—that the patient at once receives a quantity of the antitoxic material, which under the Pasteur method could only be manufactured in the body of the patient himself, and then in quantities sufficient to neutralize the infective material (say) after the second half of the incubation period.

One other most important point brought out by these researches is that, just as in the case of tetanus poison, the virus has a distinctly selective action; it seems to exert its full effect on the central nervous system or on some parts of it. Bearing this fact in mind, and injecting the doses of serum in special positions, it is found that it is necessary to inject much smaller doses of the serum under the dura mater of the brain than if the injections are made into the substance of a nerve; while subcutaneous injections require a still larger dose. It is evident that the serum must act in one of two ways: it may act as a direct chemical antagonizer of the virus,—the results of other experiments, however, appear to put this out of court; and there remains the theory that the serum so acts upon the nerve centres, probably the cells, that with its aid they are able to carry on their functions in the presence of even considerable quantities of virulent material. Where the serum is injected subcutaneously a large proportion of the active material is wasted in fortifying cells which do not really need to be protected, whilst the nerve-cells only participate generally in the benefit conferred. When the serum is injected into the substance of a large nerve, the protective agent at once finds its way into the channels which communicate fairly directly with the cerebro-rachidian lymph system, so that a larger proportion of the active protective agent comes into direct contact with the central nervous system. When, further, a subdural injection of serum is made, we have the most direct contact possible; just those parts which are in need of strengthening are brought into contact with the protective material, and the best results are obtained. Tizzoni and Cantanni claim that they have worked out all these different points and that

their results are now beyond question. Allowing for some, or even a considerable, amount of bias in the matter, there would still remain evidence, we think, of sufficient value to encourage them and others to persevere in this work. At present cases come up for treatment which, from the severity of the wounds and the amount of virus left in them, we can never hope to cure by the Pasteur method, valuable as that method is when the cases are brought under treatment sufficiently early, and when the patient does not succumb too rapidly to the virus left when the bite is made. Some of these cases, if the experimental results are accurately recorded, would undoubtedly yield to the serum treatment, especially as that treatment can be commenced with the least possible delay.

One point more must always be remembered when reading this paper and in determining the results obtained and recorded by the authors. Behring, in determining the strength of his antitoxic serum, is able to make artificial cultures of his poison-producing organisms, after which he has only to separate the poison from these organisms in order to obtain a poison of constant strength which has no power of reproducing itself. Tizzoni and Cantanni, on the other hand, are handicapped by the impossibility of making artificial cultures of their rabic virus, whilst, unless the process of peptic digestion or some similar process is carried out before the virus is injected, this material remains capable of reproducing itself for some considerable time after the injection has been made. Altogether, the paper is full of suggestions. Much of the work has evidently been carefully done, and if we cannot accept all the conclusions arrived at it is because the statements are so far-reaching and important that it would be unfair, even to the investigators, to accept them without very full and independent corroboration.—*London Lancet*, Sept. 23, 1895.

MERCURIAL ERUPTIONS.

O. Rosenthal (*Berl. Klin. Woch.*, 1895, Nos. 23 and 24) first mentioned folliculitis as occurring from the external use of mercury. The lesion consists in hard red nodules separated by normal or slightly reddened skin. These nodules may suppurate, owing to secondary infection. Erythema or eczema may result from the local action of mercury. Mercurial eczema may be papular, vesicular, or pustular; it may also be a moist eczema. In severe cases there may be a marked exfoliative dermatitis, of which the author relates a case in a patient aged twenty-one. The mercurial erythema may resemble the rash of measles or scarlet fever; where it results from the local action of mercury, it starts from the site of the inunction; sometimes even minute hemorrhages may occur into the skin; an exudative form, erythema multiforme, has been seen. The most serious mercurial eruption is that resembling pemphigus, of which the author relates a case. Mercurial eruptions have a polymorphic character. The mucous membranes may be affected in the same way as the skin. Mercury administered by the mouth or by subcutaneous injection, etc., may give rise to these eruptions, but not so often as inunction does. The author maintains that under the use of insoluble mercurial salts, mercurial eruptions, stomatitis, salivation, etc., have rather decreased in frequency than otherwise. Other symptoms of mercurial intoxication are rarely present along with the eruption. Besides idiosyncrasy, dose, the kind of preparation, and the sea air, it is said, may predispose to mercurial intoxication. According to the severity of the eruption, general symptoms such as depression, headache, fever, etc., may exist.

TREATMENT OF SNAKE-BITE BY CALCIUM CHLORIDE.

Phisalix and Bertrand, at the Académie des Sciences (*La Sem. Méd.*, June 19), report the result of experiments with chloride of calcium in cases of snake-bite. Its therapeutic action is not, as thought by Calmette, due to formation of some substance neutralizing the poison, nor to its entering the circulation and there destroying the poison as it would in a test-tube, but depends simply on its local effect; it destroys the poison locally, causes the tissue to slough, and so prevents absorption of the toxic material. Hence it is concluded that the injections of calcium chloride must be made deeply at the actual spot where the fangs entered, and are useless if made in any other part.

A DISCUSSION ON THE TREATMENT OF MELANCHOLIA.

In an exhaustive article on Melancholia, in the *British Medical Journal* for Sept. 28, 1895, Rayner, of St. Thomas Hospital, states that the primary step in treatment of melancholia is an exhaustive investigation of the patient's history, habits, and environments, and a

thorough examination of every bodily organ, together with the adoption of the best means for the removal or relief of any abnormality. This for the most part falls within the scope of general medicine, and requires no comment. Rayner would specially insist, however, on the necessity of discovering and removing peripheral irritations in the early stages of disorder.

In treating the conditions directly related to melancholia, those connected with functions have practically to be considered before the theoretically primary processes of nutrition. Motor activity constitutes so important a form of expenditure of energy as to need separate consideration; within due limits it is the most potent auxiliary in the restoration of health, promoting assimilation and excretion while affording the greatest amount of diversion of mental attention with the least expenditure of cortical energy. But muscular exertion, when carried to excess, may produce in the nerve centres a condition of exhaustion that cannot be well repaired under the existing conditions of nutrition, and that may be further embarrassed by the toxic products of waste. The old practice of walking a patient about until utterly exhausted to produce sleep was, Rayner believes, harmful in this way. Abstention from exercise is an equally potent factor for good under certain conditions, but does harm when wrongly used, just as exercise does. The question, therefore, to be considered, is not the goodness or harmfulness of rest and exercise, but the conditions under which each is beneficial.

Dr. Batty Tuke, in a recent debate on rest and exercise, advocated rest in bed as advisable in a large proportion of melancholics, and gave some very striking statistics of the result of such treatment. The melancholic state being essentially one of nervous exhaustion and malnutrition, this mode of treatment would commend itself as being rational; but we have to remember that although the muscles may be at rest, the mind may still be painfully active—that rest of body does not include the mental rest which these states specially need. Rest in bed, with isolation, as in the Weir Mitchell treatment, has been found distinctly harmful in melancholic neurasthenics, but such cases have certainly been advantaged by mental diversions. The conditions of the rest in bed have, therefore, also to be considered.

Observation favors the opinion that it is wisest to decide the question of rest or exercise on the merits of the individual case, rather than by any fixed rule relating to the class or form of disorder. Rest in bed may be necessary in cases of great physical weakness or rapid emaciation. In complete insomnia, in sitiophobia, or in acutely suicidal cases, it has been found advantageous. In all conditions, in fact, in which there appears marked depression of the innervation of the organic functions, rest in bed may be prescribed. Sleeplessness, refusal of food, and acute suicidal impulse, all subside more rapidly under this than under any other conditions.

The loss of muscular activity should be met by massage, which should be made as protracted as possible so as to afford diversion of attention to the sensory impressions. The attention should also be diverted and the skin action improved by baths and hydrotherapeutic applications. Mental diversion should be furnished also by reading aloud, music, games, and every means which the mental state, tastes of the patient, and the circumstances admit. Supervision and companionship should be constant, and little of the day should be left without some attempts at diversion of the attention.

The diet requires careful consideration; an excessive diet is commonly indicated, but in some cases even a milk diet is necessary. Great harm has in some cases resulted from excessive feeding when combined with rest.

Rest in bed, with isolation, is indicated in cases of extreme sensory irritability. It is specially contra-indicated in erotic cases and in cases having sensory hallucinations or illusions. The return to activity must be gauged by the subsidence of the special symptoms for which rest was adopted, by improvement in sleep, nutrition, and especially by improved vascular tone. In resuming activities the results of the earliest efforts must be keenly observed, and short periods of activity should be sandwiched in between periods of rest. Relapses constantly occur from too great haste, and nothing taxes the judgment of the physician more than in advancing the patient to that Mecca of the melancholic—a full day in the open air.

The limitation of cerebral function—that is, of cortically developed nervous energy—is the next question for consideration. The mind is more or less active in all conscious states; absolute mental rest is only possible healthily in sleep, abnormally in stupor and similar conditions. To those engaged in most complex mental work a change of subject, even to one equally arduous, in health may

be a pleasure, while change to a less complex or more familiar subject may be an absolute rest. To highly developed minds engaged in complex affairs a change to mathematics or classic translation is a rest and refreshment, while still greater rest, of course, results from occupations which are more and more automatic, or amusements involving mere sensory attention.

The power of persistence of function varies remarkably in individuals, so that both in quality aud quantity of function we find that what is hard work for one man is idleness for another. Regulation of functional output from their point of view is therefore very difficult, and no general rule for guidance can be given.

In pure melancholic states the painfulness of all mental exertion, with other causes, tends more and more to the limitation of intellection and the consequent concentration of attention. In the extreme this is absolutely fixed in the basal, most organic emotion—fear, often expressed in one idea, from which no external impression, however forcible, can for a moment divert the mind. The degree in which the power of attention is affected may offer a good basis for guidance in our efforts to limit and direct functional expenditure.

The quantity of food must often be not only in excess of appetite, but in excess of actual nutritional requirements. In the young this latter limit may be largely exceeded with impunity, but later in life, with defective eliminative power, the quantity of meat food and alcohol has to be carefully regulated. Apart from the toxic resorption in the intestines from undigested and decomposing meat food, the assimilation of a large quantity of meat extractives may introduce an additional toxic element. Alcohol, too, useful in many forms in early life—yet always to be used sparingly,—in later life must be avoided or used only for its stimulant effect at the commencement of digestion; in the later stages it impedes this function. Digestion is not only weakened in power but slowed in process, so that provision has to be made that the food is specially assimilable and is taken at such intervals that the stomach is not kept continually loaded.

With milk or artificially digested food, feeding may be very frequent, but with returning strength intervals of three and a half hours or more should be aimed at. The Kneipp cure is not without its lessons in this respect. In digestibility the food must range from milk or peptonized pancreatized food, to the most *recherché* productions of the cuisine. In quality the food should be rich in fats from milk, cream, butter, and eggs. Albuminous food should be limited in elderly persons, and in this respect quaint old Burton's prescription may be followed. He advises "mountain birds, partridges, pheasants, quails, hens, capons, mutton, kid, and rabbit, with fish that live in gravelly waters, as pike, perch, trout, and also sea fish, solid and white, with plentiful supplies of vegetables and fruit, eaten sparingly, and not overmuch of one dish."

The mode of origin of the abeyance of appetite is worthy of consideration. Does it arise, for example, from peripheral anesthesia from lowered nutrition, from defective transmission of impressions from the periphery, from neural defect, or from toxic conditions affecting the pneumogastric centre, or from combination of these conditions?

Fear, the basal emotion in extreme melancholia, not only reduces excretion, but has been credited with producing toxic results by the arrest of metabolism. Eliminative treatment should, on this view, form the basis of treatment, and is, the author believes, often effective.

The appetite is rarely in excess; toxic conditions and states of arrested digestion are probably the most frequent source of this anomaly. The abeyance of the food appetite, and the consequent avoidance or absolute refusal of food, constitute one of the most important facts common to all states of melancholia. The basis of the objection to food must in all cases be carefully inquired into, in order to exclude such causes as the unaccustomed quality of food or physical conditions of the mouth, throat, or stomach.

When the refusal is undoubtedly of psychic origin, we should not admit even tacitly the truth of the delusive idea by allowing patients to steal their food or to take food prepared for others, etc.; these procedures may save some trouble at the outset, but are productive of greater trouble in the end. When there is not complete control of the patient, such devices may of course be temporarily adopted.

In the minor degrees of refusal, much of the success in administering food turns on the skill of the administrator. Some nurses constantly fail, while others are almost invariably successful; the result probably depends on the skillful diversion of the patient's attention to objects of sight, hearing, and common sensation, as well as to emotion, by sympa-

thetic kindness of manner or facial expression, and to the intellect by kindly talk. Such procedure, with a very moderate amount of force and insistence, will generally prove successful. At times a few drops poured through the nose will be effective.

Every alienist should practice feeding, so as to be able to instruct attendants and to prove in each case the necessity of forcible feeding. The physician should not rely merely on the statement of an attendant, but should verify the condition by observation.

With rest in bed and skillful insistence in feeding, actual forcible feeding by the nasal or esophageal tube may be often avoided. Some observers have insisted that feeding by these means need never be resorted to; but it is better to err on the side of feeding too early and too often than in the opposite direction. Absolute refusal should be met by prompt resort to forcible feeding. This is now pretty evenly divided between the nasal and esophageal tubes. The stomach-pump is now almost universally superseded by the chalice.

At a recent discussion on this subject, opinions were very equally divided, and each method found strenuous advocates. The advantages claimed for the esophageal tube are: the greater rapidity of administration, the power of giving a greater variety of nutriment in a less watery form, and the absence of risk of passing the tube into the larynx. On the other hand the nasal tube has the advantage in cases where there is very determined resistance.

The danger of cultivating the habit of refusal by directing the patient's attention to it is one to be clearly kept in mind; the obstinacy of melancholia makes this a real danger. To avoid this, preparations for feeding should not be made in the patient's sight; active resistance should be overcome by such an amount of force that no struggling or delay can occur, and as little importance as possible should be given to the fact by those engaged in it. The patient's eyes should be closed during the process, which should be conducted with as little talking as possible. The frequency of feeding should be at intervals of not less than three hours and a half, and from two to five times in the day.

It is scarcely necessary to insist on the advantage of adding lime, lemon, orange-juice, or pulped green vegetables, or the advantages of peptonizing and pancreatizing the food, or to direct attention to the danger of too great excess of meat extractives. Pounded meat is always preferable to beef-tea. A due proportion of the various elements of food should be aimed at. The position in which the feeding is administered, and the precautions to be observed in passing the tubes, are too well known to need special comment. Rectal alimentation is the last resort when feeding by the mouth becomes impracticable from exhaustion or other causes. Defibrinated blood has been found of special value in this connection.

The treatment of sleeplessness in melancholia is a point on which considerable divergence of opinion exists, and one which demands special attention. Narcotics, hypnotics or sedatives are vaunted as important curative agents by some observers, but are utterly condemned by others. The history of these remedies is against them. Every year, almost every month, some new drug is brought out, with loud asseverations of its harmlessness, only to fall into desuetude on the appearance of a newer and more fashionable rival. The nervous and mental disorders resulting from the protracted use of these drugs, where we have known them sufficiently long, are generally recognized, these disorders too being almost invariably accompanied by grave defect of bodily nutrition. The most enthusiastic admirers of this class of drugs will not claim that their beneficial action results in improvement of the general health. The experiments of Binz, of Bonn, seem to indicate that the action of many narcotics is directly on the brain-cells, not on the vessels, and this action is certainly not in the direction of improving nutrition, but corresponds rather to a pathological change.

The question may fairly be asked: In what way do these drugs affect the cerebral nutrition so as not only to avoid producing ill-effects from continued use, but even to relieve abnormal conditions often of long standing? The inquiry may also be made whether the state of insensibility produced by them is identical with normal sleep. In the latter, nutritive repair and active resorption take place. Do the same changes occur during insensibility from drugs? The experiments of Hodge make it possible to hope that this question will soon be answered on the physical side, and the investigations of Kraepelin in regard to their effect on mental reactions will probably give a solution from the mental aspect. In the meantime we must be content to rest on observation and experience. The phenomena involved are complex and little understood. Many eminent men have expressed

confidence in these drugs, but the balance of opinion seems to have steadily shifted, and those who still believe limit their approval to some one drug or to some special limited form of disorder. Not inutility merely, but harmfulness and deleterious effects, are being more and more ascribed to them.

Personal observation has led Rayner to the conviction that narcotics and sedatives are often pernicious in melancholia; that they almost invariably protract and intensify the disorder, and their systematic use is to be avoided by every means in our power. Only under conditions in the environment of the patient which preclude other means of treatment are they even temporarily admissible. They are dangerous, not only by exaggerating the condition, but by leading the physician to neglect the more legitimate means of combating sleeplessness and disorder. They are dangerous also to the public, who too readily obtain them under cover of the physician's prescription in their belief in the harmlessness of the latest novelty.

Rayner bases his opinion on results obtained by himself—in the great improvement following omission of the use of these drugs, even where other conditions remained unchanged; on the expressions of those who have been subjected to their influence; and on the symptoms of mental confusion and stupor sometimes introduced into otherwise simple cases.

Sleeplessness due to peripheral irritation—as, for instance, in the presence of undigested food in the stomach—must be met by removal or avoidance of these conditions.

The sleeplessness of melancholia is probably due in most cases to the arterial supply not being sufficiently inhibited to reduce it to the level which obtains in normal sleep. Occasionally, however, it appears to be due to excessive inhibition or anemia. In the majority of cases, therefore, the object must be to divert blood from the cerebral area to other areas of the body, especially, of course, to the abdominal, or, where this is for any reason undesirable, to the limb areas. Primarily we should remember that the condition of defective vaso-motor inhibition is probably due to the cry of the ill-nourished cerebral cells for nutriment. The first sleep in insomnia usually follows on the taking of food; in slight degrees this occurs directly on the ingestion of nutriment, by the mere diversion of blood, but in more severe cases sleep follows later, when it is probably due in part to the added supply of nutriment. The return of sleep at the accustomed hour should be promoted by making this correspond to the completion of the digestion of the last meal, which should not give any cause of peripheral irritation, but be as nutritious and digestible as possible. The brain should also have rest by the avoidance of intellectual effort or emotional excitement during the latter hours of the day.

The diversion of the blood to the abdominal area may be effected by hot fluid food, hot fluids, or a small amount of stomachic stimulation. The general diversion may be accomplished by stimulation of the cutaneous surface by warm baths, the warm pack, abdominal compresses, etc. Stimulating applications of mustard in various ways may also be used. Cold to the feet, followed by brisk rubbings, is at times efficacious.

TREATMENT OF ECZEMA.

In the *Boston Medical and Surgical Journal* for Oct. 10, 1895, BOWEN first discusses the modern theories about eczema, and then passes in review the chief methods of treatment that have been introduced or advocated during later years. At the outset it may be said that most of these methods depend for their efficacy upon the consistence of the preparations recommended, their power of adhesion to the skin, or their mode of application. No specific has been discovered, and few new drugs have been added to our store of internal remedies.

Arsenic is never used as a routine treatment, and never in the acute stages. It is reserved for the chronic, unyielding varieties, and even here its use has been much curtailed. A variety of drugs are used internally, according to the general indications of the individual case, but no new remedies of much value have been introduced. Ergot, phosphorus and antimony have their advocates, but their specific influence on the disease is far from proved.

In the treatment of the acute forms our attention should be directed to the use of remedies to protect the inflamed surface from the outer air, to absorb the secretions and to limit their formation, and to lessen the itching—which in many cases is intolerable.

One of the most useful principles that has been introduced during the last fifteen years is that of substituting, especially in the more or less acute forms, variously compounded pastes for the ointments that had previously

been relied on. Hebra's method was to spread the ointment or liniment upon lint or cotton and have it worn continually. The good results of this procedure were due in the main to the absolute sealing up of the inflamed surface from the outer air, and to the removal of the products of the inflammation. But as fats are an important constituent of all liniments and ointments, it is found that irritation is frequently caused by the splitting up of these fats into fat acids and glycerin, under the influence of the secretions with which they are brought in contact. This irritative property appears to vary to a considerable extent in different cases, owing both to individual susceptibility and to the grade of the inflammation. It is to be ascribed both to the action of the fat acids and to the glycerin, probably, as both of these substances are often of an irritating nature.

These drawbacks are obviated by the use of preparations composed of indifferent or astringent powders mixed with vaselin in such proportions that a smooth, thick paste is formed, admirably suited for the absorption of the products of inflammation and for protection from the outer air. Chief among these is the well known Lassar's paste, composed of equal parts of oxide of zinc and starch in double the quantity of vaselin. Its claimed advantages have been substantiated by experience. Some of these are: that it does not liquefy at the ordinary temperature of the skin, but dries on quickly and can be retained even in very hot weather by sprinkling on a little powder; it can be applied to very small patches, and adapts itself to all parts of the body; hairy portions of the body are the only ones to which it is not suited, as the hairs become matted together from the solid constituents. It is found in practice that patients who are unable to endure the application of any ointment without violent reaction, bear this preparation with ease, and even where vaselin alone is not borne the mixture with zinc and starch may suit well.

At the time this paste was first spoken of, Lassar believed that salicylic acid was almost a specific for eczema, and he therefore combined it with his paste in the following formula:

℞ Acid. salicylic., gr. xxx;
Vaselini, ʒ xij;
Zinci oxidi,
Amyli, of each ℥ vj.

This paste should be spread over the inflamed and oozing region in a thick layer, and may afterward be covered with a thin layer of absorbent cotton. The dressing is changed once or twice daily if the secretion is considerable; if not, it may be left in position for several days oftentimes. By means of this paste alone many cases may be completely healed without having recourse to more stimulating remedies in the later stages. The salicylic acid is of no practical use in acute forms, and, although a small percentage is rarely irritating, it is best left out. The chief action of salicylic acid cutaneously is of a keratolytic character—that is, it has the property more than any drug known of softening and dissolving the horny layer, without at the same time causing a dermatitis. In the later stages of eczema, where there is infiltration in the corium and hypertrophy of the horny layer, the addition of the salicylic acid to the paste is indicated, even in much greater proportions than in the above formula.

Salicylic ointments in the treatment of infantile eczema have been much praised. Taking this paste as a base, various medicaments, such as sulphur, ichthyol, boracic acid, etc., may be incorporated with it, and in some instances a more favorable effect obtained than when the drug is mixed with animal fats or simply with vaselin.

Many attempts have been made to produce preparations that when dried upon the skin will form firm but flexible thin coatings, exerting a certain amount of pressure, protecting equally from the irritation of the outer air and from the entrance of microorganisms, to which various medicaments of known value in eczema may be added. Pick introduced gelatin dressings, which he at first used in combination with chrysarobin in the treatment of psoriasis, and to these Unna and Beiersdorf proposed to add a percentage of glycerin. Later, Pick brought forward a sublimate-gelatin dressing which he recommended both for the earlier erythematous and papular stages, and for the thickened, scaling varieties. Thirty grammes of gelatin are mixed with sufficient water, macerated for several hours, then liquefied on the water bath and evaporated to 75 grammes; to this are added 25 grammes of glycerin and 0.05 gramme corrosive sublimate. This gelatin dressing is liquefied by heat when used, and a thin coating is painted over the affected part. In chronic eczemas of the lower leg especially, this preparation has often proved of value.

Acting upon the principles of the gelatin dressing, and in the endeavor to obtain a preparation that would offer all its advan-

tages without its disadvantages (notably among the latter the necessity of heating the preparation each time before applying it), Pick introduced tragacanth, and Elliot proposed bassorin as a base for incorporating medicaments—preparations which, like gelatin, are useful in certain forms of eczema as well as in a variety of cutaneous affections. Unna, working upon the same lines, introduced ichthyol varnish, a mixture of ichthyol in various proportions with starch, solutions of albumen, etc. An almost endless variety of substances may be obtained in this way which form protective coatings upon the skin. Their use is limited, however, as it has not been shown that they are superior to other methods, and in many instances their inferiority is distinctly apparent. In certain cases, however, they are a useful addition to our resources.

Much greater practical value must be accorded to the salicylic soap-plaster recommended by Pick for the vesicular and moist as well as the thickened forms of eczema. Its advantages in the writer's experience are far greater in the latter class of cases. Its composition is as follows:

℞ Emplastr. saponat. liquefact., ℥ iiss;
Oleo olivar., ʒ v;
Acid. salicyl., gr. xxij.

The plaster is spread and cut into strips, which are firmly adapted to the affected parts and left in position for several days. Its great advantage is that it is not necessary to change it frequently.

A real value must be admitted for ichthyol and resorcin, which belong, according to Unna, to the group of reducing agents, and owe their therapeutic action to this property. Ichthyol as used is really a sulphoichthyolate of ammonium which is obtained from a bituminous substance found in the Tyrol. Its efficacy is probably due in part to the large percentage of sulphur it contains, and in part to its consistence, as it readily forms a sort of protecting and adhesive varnish when applied to the skin. Unna considers it of special efficacy in the so-called nervous eczemas and in intertriginous affections. It may be used in solution with water in various proportions, in a thick varnish, mixed with albumen or starch, or in ointment form. On moist patches an emulsion with water of the strength of 1 to 10, or 1 to 20, is often of service, especially when followed by a soothing ointment or paste. It may also be incorporated with the various pastes, varnishes and gelatin preparations that have been described. The objections to its use are its color and disagreeable odor. Thiol has the advantage of being odorless, and has seemed in many cases an efficient substitute for ichthyol.

Resorcin, which is of much value in many cutaneous affections, has but a small place in the treatment of eczema. In certain scaling forms it may be used with advantage, but its irritating properties, especially in certain individuals, limit its range of usefulness in this affection.

Much prominence has also been given by Unna to his treatment by ointment- and plaster-muslins, a system that has no doubt its advantages, but which should not be looked upon as superseding other equally good and in certain cases superior methods. The ointment-muslins are made by impregnating muslin on one or both sides with the ointment wished for. The muslins thus prepared are cut into strips, applied to the skin, and bound down by muslin bandages. It is often of advantage to spread the ointment or paste that we wish to use on muslin, and ready-made applications of the sort are often convenient, but it is difficult to see how the method so minutely elaborated contains any new principle or offers any especial therapeutic advance.

The plaster-muslins are made by spreading the drug to be used upon a thin layer of gutta-percha backed with muslin. The advantage claimed for this kind of plaster is that a larger percentage of the medicament is brought into contact with the skin, the amount of adhesive substance needed being so much smaller. In eczemas these plasters have been recommended for the treatment of the chronic infiltrated patches, and are often of much service when combined with white precipitate, salicylic acid, etc. Their usefulness is far greater in tuberculosis and in chronic processes with hypertrophy of the horny layer than in eczema.

Lassar's method of treating eczema, even in the acute stage, by means of baths, may be mentioned, active remedies such as tar, chrysarobin, etc., being borne while in the bath without irritation. This method was supplemented by the use of ointments, pastes, etc., in the intervals when the patients were not in the bath.

In conclusion, it may be repeated that the writer's intention was merely to touch upon some of the methods of treatment suggested of late years. The older, and in many cases more reliable, methods have not been mentioned. It is to be remembered that there is

as yet no specific for eczema—that regulation of the diet, attention to hygiene, and removal of any conditions unfavorable to the general health, are of very great importance. Internal remedies are often of great aid, especially in the so-called nervous forms; and success depends in this class of cases more upon the general management of the patient's life, and upon moral influence and support, than upon topical applications.

FERRATIN, AN IRON TONIC AND FOOD.

In Sajous's *Annual of the Universal Medical Sciences*, 1895, vol. v, A, 90–91, Dr. DUJARDIN-BEAUMETZ summarized the record of ferratin, the new iron food and tonic reconstructive, as follows: Ferratin is the name given by Schmiedeberg, of Strasburg, to that combination of iron which is found in the normal tissues and which is stored up in the latter as a reserve from which it may be drawn for the formation of blood. He has succeeded in producing this substance, by artificial means, in the form of a fine powder of red-brown color, like oxide of iron. Two forms are known to commerce—the one simple and insoluble in water, the other a sodium compound which readily dissolves on stirring after being allowed to stand a little while in water. The latter must be as free as possible from lime, otherwise an insoluble calcium compound is formed. Ferratin, in contradistinction to those compounds of iron hitherto in use, is readily assimilated and does not produce any unpleasant disturbances in either the gastric or enteric functions, even when used for a lengthy period; indeed, in some cases its exhibition seems to produce improvement in the appetite and regularity in defecation. As a portion of the substance is decomposed by the acid gastric juice and also by sulphuretted hydrogen, a sufficient quantity of ferratin must be ingested to leave an overplus in the bowel-tract so that the organism may pick up as much as it requires. There is no necessity whatever to anticipate overloading of the organism with the iron, as absorption and excretion appear to be mutually controlling. Excretion does not take place through the kidneys. The daily dose for adults is 1 to 1.5 grammes (15½ to 23¼ grains). Acids should be avoided, but no other restrictions are necessary. Schmiedeberg points out that ferratin is first and foremost a food and its use is indicated in all cases in which nutrition and blood-formation are unsatisfactory.

Banholzer, of Eichhorst's clinic, relates his clinical investigations with this preparation. In anemia following acute disease the hemoglobin was quickly increased (over five per cent. in eight days), as also the number of red cells. In chlorosis the same results were visible, even in a more marked degree. The general condition was improved and the increase in weight in most cases considerable. The good effects on the appetite were obvious. When compared with Blaud's pills, which also give good results, ferratin was found to lead to a greater increase in the hemoglobin. John Harold found that in three cases of severe anemia the preparation appeared to exert a remarkable hematinic effect; it did not interfere with digestion or produce any constitutional disturbance. In one of the patients, iron, in the form of a scale-preparation or as reduced iron, had been previously given for twelve months without apparent benefit.

Germain Sée has also tested ferratin, and finds that it can be employed in men apparently healthy or in children and chlorotic subjects, the curative action not being interfered with by injurious secondary effects, as is often the case when ordinary ferruginous preparations are used. The dose used by him is from 0.05 to 1.5 grammes (⅞ to 23¼ grains) two or three times a day. Each dose contains about seven per cent. of iron. Marfori states that care should be taken not to associate it too closely with acid materials. Hugo Wiener reports twenty cases in which it produced favorable results.

TREATMENT OF ADENOID GROWTHS IN THE NASO-PHARYNX.

DR. SEMON discusses this subject at length in the *British Medical Journal*. A combination of the symptoms of post-nasal growths—the defective nose-breathing, the open mouth, the compressed nostrils, the snoring and even embarrassed breathing during sleep, the sluggish intellectual powers, and notably the defective hearing from middle-ear disease—occurring in early life, generally denotes the existence of these growths in the naso-pharynx.

These vegetations tend to atrophy and disappear spontaneously when adult age is reached; hence the question might be asked: Why not wait for their spontaneous disappearance? No doubt, in slight cases, presenting few symptoms, and especially if unattended by ear mischief, no harm would

follow the policy of waiting for their spontaneous disappearance. In most instances, however, such delay might be fraught with most important consequences. Dr. Semon gives the following pregnant reasons against delay in removing these growths: (1) the influence of the obstruction upon general health, mental development, and the formation of the face—results which remain forever, even if the glands themselves undergo atrophy; (2) the ever-present danger of ear complications; and (3) the greater liability to, and seriousness of, infectious diseases of childhood, especially diphtheria and scarlet fever, so long as the hypertrophic glands are present.

The operative is the only form of treatment worthy of consideration. Of the many methods of operating for the removal of these growths, that with Gottstein's curette or some of its modifications is the simplest and most efficient. It is right, however, that we should be acquainted with the various other methods which are employed, and the author describes these, as well as the operation with Gottstein's curette, in the following order: (1) the natural finger-nail; (2) the artificial nail; (3) Hartmann's curette; (4) Gottstein's curette or its modifications; (5) Golding-Bird's curette; (6) Lowenberg's forceps and modifications; and (7) Meyer's ring-knife. Sometimes a combination of methods is adopted—the forceps for removing the large tough portions, and the curette and finger-nail for the softer variety and for those growing on the lateral walls of the pharynx. We shall first, however, consider—

The question of anesthetics. There is no doubt that a general anesthetic adds a slight element of risk to this operation, which, without an anesthetic, may be said to be absolutely free from danger. On the other hand, it is found that in the cases of children or very nervous adults it is very difficult without an anesthetic to eradicate the whole of the growths, at any rate at one sitting. A general anesthetic is more frequently given in England than on the Continent, where it is quite customary to repeat the operation, it may be several times.

One of the chief risks in operating under an anesthetic is that of blood finding its way into the larynx or bronchial tubes, causing asphyxia, or failure of the heart's action, or subsequent inflammation of the lungs. This danger may be said to be almost entirely averted by the adoption of a suitable position for the patient, by the prompt use of sponges, and, above all, by a proper method of giving the anesthetic. In regard to the position of the patient during anesthesia, most surgeons operate with the patient's head hanging backwards over the end of the operating-table, so that the blood or fragments of detached growth may pass out through the anterior nares or mouth. Unfortunately, this dependent position of the head tends for the time being to increase the bleeding, which, however, as a rule, soon ceases after the head has been raised. Some operators, such as Mr. Hovell, prefer that the head should be on a level with the body, and trust to the rapid mopping up of the blood with sponges. Dr. Butlin operates with the patient on his side, the thighs being flexed and the head bent a little forward on a low pillow. Mr. Braine, in giving nitrous oxide gas and ether, chiefly for the operation with the finger-nail, first places the patient in the semi-recumbent position, and, when the narcosis is sufficiently complete, flexes the trunk forcibly on the thighs—the blood escaping from the mouth and nose into a basin placed between the patient's knees. In the curette operation under an anesthetic, he always operates with the dependent position of the patient's head, and even then rapid removal of the blood by sponges is necessary to prevent suction of blood into the trachea. With nitrous oxide gas the sitting posture may be justifiable.

In regard to the kind of anesthetic employed, the fact of several deaths having occurred from the use of chloroform has led some to discard it and to resort to ether or nitrous oxide gas, or to both. It is alleged in favor of ether that the power of coughing and swallowing is generally retained, and that the noisy respiration of ether anesthesia, compared with the quiet breathing of chloroform, keeps you better informed as to the state of the respiration; besides, the heart's action under ether does not fail so quickly. On the other hand, the large quantity of frothy secretion which is usually poured into the throat, and the more profuse bleeding due to great venous turgidity, are highly objectionable features of ether narcosis; while the labored and stertorous breathing, instead of being an advantage, may rather tend to suck the blood and frothy secretion into the larynx. Nitrous oxide gas may suffice with the nail operation or even with a rapid curette operation, but it does not allow of sufficient time for the use of forceps. In order to save time, the gag should be introduced before the beginning of the administration of

the gas. Some operators begin with nitrous oxide gas, then go on to ether, and when the patient is fairly deeply anesthetized they continue with chloroform till the end of the operation. The writer has operated with both ether and nitrous oxide gas as anesthetics, and his experience has led him to prefer chloroform, cautiously and sparingly given on a mask, with a plentiful supply of air, care being taken that, while the corneal reflex is abolished, the cough and swallowing reflex be not entirely in abeyance. It is important, however, that, though very deep chloroform narcosis is to be avoided, it should be deep enough to relax the muscles of the face and to prevent retching during the operation.

When the growths are numerous and large, prolonging the operation, the anesthesia may be cautiously maintained by pumping in more of the vapor through a tube from Junker's apparatus held at the side of the gag. It is right to mention, however, that such an important authority on anesthetics as Dr. Silk disapproves of giving chloroform or any other anesthetic after anesthesia has been induced and the operation begun. Upon the importance of this Dr. Silk places great stress. Here it may be remarked that a competent anesthetist with special experience in these cases is of very great importance. He should wait beside the patient till perfectly satisfied that he is safely out of the anesthetic. The deaths which have occurred seem to have been in some cases due to neglect of this precaution. While the surgeon and anesthetist turned aside for a few minutes to attend to some other matter, thinking the operation was safely completed and the anesthesia passing off satisfactorily, the fatal result took place from sudden failure of the heart's action.

Only in the softer and flatter forms, occurring in very young children, does the writer think the method of scraping them away with the finger-nail sufficient by itself to eradicate the growths. The finger-nail may, however, be employed with advantage for the clearing away of remnants of growth after the use of a curette or forceps. If the finger-nail treatment be employed, the nail of the right index-finger should be first kept properly pared, so as to be neither too short nor too long. If too long, the nail is apt to bend or even to break when tearing off the vegetations. The finger-nail should, of course, be scrupulously clean, and before operating it is a good plan, as proposed by Mr. Pritchard, to immerse it for a short time in rectified spirits, both for the antiseptic effect and for the hardening influence on the nail. If no general anesthetic is given, a ten-per-cent. solution of cocaine should be applied to the naso-pharynx, either with a spray through the nasal passages or by a plug of cotton on forceps introduced from the lower pharynx. The cocaine is more efficient in adults, as we are able in them to apply it more freely and with greater safety to the walls of the naso-pharynx. The child being seated in a chair, his arms and legs held firmly by assistants, the right index-finger is introduced into the mouth, moved rapidly backwards, and turned up behind the soft palate. The nail of the finger is then made to tear or cut through the soft tissue in the roof and back wall and from the neighborhood of the Eustachian prominences, if any there exist. In order to prevent the patient biting the finger of the operator, the first phalanx and the metacarpo-phalangeal joint should be protected by thick india-rubber tubing, or—as is done by some operators—by pressing the cheek of the patient between his teeth on the left side. In some cases the soft palate moves backwards before the finger, so as to close the way to the naso-pharynx and prevent the introduction of the finger; in such cases the author has found it a good plan to introduce a uvula-retractor and press the uvula and soft palate firmly but gently forward with the left hand. When the finger is well into the naso pharynx the retractor is withdrawn.

Some authorities—such as Mr. Pritchard, Mr. Field, and Mr. Lennox Browne—seem to trust entirely to this method, which was first advocated by Dr. Guye, of Amsterdam. There is a decided feeling, however, on the part of most specialists, that the method is in general insufficient, subsequent operations being not infrequently required.

An artificial nail of steel is used by some authorities, such as Dalby, Capart, and Bezold. It is fixed to the index-finger, and, being of course stronger than the natural nail, is more capable of penetrating and removing the growths. The writer has found its use unsatisfactory, owing to the impaired tactile sensibility and the increased bulk of the finger preventing safe and efficient use. Justi and Trautmann employ an artificial nail fixed on the end of a stem which is attached to the finger. Of this method the writer has had no experience.

Gottstein's curette is a triangular fenestrated instrument attached at a right-angle

to a long handle. The inner edge of the base of the triangle is sharp as a knife. This is the instrument which the author generally employs in removing these growths, and he has found this method more convenient and satisfactory than any other. In this his experience agrees with that of Politzer, Rosenberg, Semon, McBride, and others. In this country, when Gottstein's curette is employed, the patient is usually anesthetized with chloroform, and lies on his back with the head hanging well over the end of a table, supported by the hands of an assistant, the back of the neck resting on a firm pillow. A waterproof cap, similar to a bathing-cap, should cover the head in order to prevent the blood which flows from the nose mingling with the hair. A large towel or piece of jaconet should envelop the upper part of the body. A gag (Mason's) should be applied on the left side, well guarded with thick india-rubber tubing so as not to injure the teeth or gums. The teeth should be examined, and if a loose tooth is found care must be taken for fear the gag should separate it altogether and endanger the patient by the tooth slipping into the larynx during the operation. The chloroformist is at the head of the patient, the operator on the right side, and an assistant for attending to the gag and sponges at the left. A dozen small honeycomb sponges, clean and aseptic, secured on sponge-holders, should be at hand. The finger is introduced into the naso-pharynx to determine the quantity, situation, and character of the growths. The triangular end of the curette is then introduced behind and above the soft palate, with its convexity upwards and backwards, avoiding the lateral walls, until the blunt edge of its base is in contact with the posterior edge of the nasal septum. The handle is now grasped firmly, and the curette pressed well down upon the roof of the pharynx and drawn backwards and then downwards, so that the sharp edge is made to sever all the vegetations in its sweep. With the ordinary curette the vegetations removed in this way are either expelled through the nose, mingled with the blood, mopped out with the sponges, or swallowed. A useful modification has recently been introduced in which there is an arrangement with two sharp prongs in front of the triangular steel frame for detaining the vegetations cut off with the sharp edge of the curette. Usually three strokes are made before withdrawing the curette, and then, with one sponge quickly introduced after another into the pharynx, the blood is mopped up by the assistant. Once more the cavity is examined with the finger, and if any growths are still found the curette is again introduced, or the finger-nail may be sufficient. If the curette is employed without an anesthetic, the patient should be seated on a chair having a low, broad-cushioned back, over which the head is bent, and supported by an assistant. After cocaine has been freely applied to the walls of the naso-pharynx, the tongue is pressed down with a spatula, and the curette is employed in the same manner as when an anesthetic is used.

Hartmann's curette is preferred by some operators, such as Krause of Berlin, and Brunner of Bradford. The force is applied laterally, and not antero-posteriorly as with Gottstein's curette. An anesthetic is rarely used by those who employ this instrument. The patient, if a child, sits upon the knee of a trained assistant, who, with his legs and left hand, fixes respectively the patient's legs and arms, at the same time holding the patient's head firmly, the palm of the right hand being placed firmly against the patient's forehead. In this way the head of the patient is held immovably against the chest of the assistant. Light is reflected into the throat, the tongue is depressed by a spatula, and the curette is then pushed up into the naso-pharynx, where it is firmly pressed on the posterior wall and roof and moved, as on a pivot, to one of the lateral walls, whence its edge is made to sweep across to the opposite side with firm pressure so as to sever and remove the vegetations in its course. The writer's limited experience of this method of operating has not impressed him favorably. It is not so efficient as Gottstein's instrument, as it usually leaves untouched the growths in the front part of the naso-pharynx, while it is apt to injure the Eustachian prominence and excite middle-ear disease. Dr. Seright, who frequently witnessed its use in Krause's hands, believes it to be a very efficient instrument.

Golding-Bird's curette is an oval fenestrated instrument connected with a long stem, bent at rather more than a right-angle near the fenestra; the cutting or scraping edge, instead of being on the inner aspect of the base, is found on the lower edge. It is applied in a similar way to Gottstein's curette, but on account of the position of the scraping edge it penetrates more deeply and is particularly suitable for scooping out the growths situated at the junction of the roof and back

wall of the naso-pharynx. While the writer has not had much experience of this instrument, he thinks it a serviceable one.

Many operators prefer the use of forceps devised by Lowenberg and modified at different times by various workers. Up to a year or two ago Dr. Semon's own method was to operate with forceps, and he found them particularly suitable with the patient in the sitting posture. There is no doubt that when patients or their friends shrink from the use of a general anesthetic, this mode of operating is probably more convenient and less painful than other methods. With the patient seated on a chair, and the head, arms and legs firmly held, light is reflected in the ordinary way into the pharynx. With the blades closed, the forceps are introduced as far as the posterior wall of the pharynx. The blades are then pushed up to the roof of the naso-pharynx, when they are widely separated and made to lay hold of one or more of the adenoid projections, which are brought away partly by cutting and partly by traction. The forceps may in this way be introduced three or four times at one sitting. The blades of the forceps should have their cutting edges above and behind, while there should be a free space in front, so as to lessen the chance of catching hold of the septum of the nose. Owing to the anxiety of the operator to avoid the septum, the growths immediately behind it are apt to escape the forceps. Mr. Hovell (who discards all curettes or scraping instruments) has modified the forceps so that the two cutting edges are circular and do not meet edge to edge, but are so arranged that the one blade encloses the other, their action being thus that of a punch. He claims for this modification that it avoids the risk of pulling away shreds of mucous membrane or of injuring the septum. Whatever forceps may be used, it is important that they should not be too large. Many of those sold by instrument-makers are much too large for children, in whom most of the cases of post-nasal growth occur. Just as after the curette operation, the finger-nail may be used with advantage to remove any fragments which may remain after the forceps have been employed. If the operation is performed under anesthesia, the patient should lie on his back, with his head on a level with the body. A gag is used as in the curette operation, and the index-finger of the left hand is introduced into the naso-pharynx with the back of the hand downwards and forwards so as to guide the blades of the forceps to the individual growths. In this way the forceps are introduced several times and the growths individually pulled or cut away until, as informed by the finger, they are all removed. This sounds very satisfactory, but in practice it is often found to be no easy matter to accommodate the index-finger and the blades of the forceps in the small naso-pharynx of a child so as to manipulate freely, and the efforts to do so often lead to much bruising and injury of the parts. When operating with the forceps, while the head hangs over the end of the table, especially great care should be taken to avoid laying hold of the septum. The author holds that in this dependent position the use of forceps is unjustifiable unless one is able with the left index-finger to guide accurately the blades of the instrument.

We must not omit to mention the method of operating adopted by the late Professor Meyer, of Copenhagen, to whom the profession is under a deep debt of gratitude for being the first to draw attention to the existence of these growths in the naso-pharynx. He operated through the nasal passages and used a ring-knife having one sharp edge, attached to a steel stem, which is introduced through the wider nasal passage. When the knife has reached the naso-pharynx it is turned horizontally if the growth is in the roof. The left index-finger of the operator is introduced through the mouth into the upper pharynx, and the ring-knife is pressed up so as to encircle one of the growths and then drawn forward, severing the growth. Few operators have followed this method of Meyer.

It is well, after an anesthetic operation, that the patient be turned on his side, retaining the head on a level with the body, or somewhat raised, while the gag is kept between the teeth for a minute. Some operators, in order to prevent bleeding, maintain pressure on the walls of the naso-pharynx for a few minutes with a sponge or folded gauze or curved forceps. In most cases, however, blood is swallowed in considerable quantity, frequently exciting vomiting, the vomited matter consisting of blood mixed with the contents of the stomach. It is well always to warn the friends that vomiting is likely to take place, if it has not already done so, and that some one should be at hand beside the patient ready to help. Pieces of ice placed in the mouth, or even in the nostrils, after the patient has regained consciousness, tend to check the sickness. The ice may be given at intervals for twenty-four hours, during which

the patient should abstain from hot liquids or solids. Bleeding of an alarming nature is very rare, but the author has been twice sent for, a few hours after the forceps operation without an anesthetic, owing to pretty copious bleeding; pressure upon the roof of the naso-pharynx by means of a fold of cotton moistened with a styptic solution, introduced with forceps, easily controlled it. The patient should rest in bed for two days and keep the house for a week after the operation, during which no local treatment of the nose with douche or syringe should be employed. These precautions are especially important in damp, cold weather, so as to avoid middle-ear inflammation, which, however, has seldom followed this operation in the author's practice. There is no doubt that injudicious nasal treatment after the operation is apt to excite inflammatory mischief in the middle ear.

Not infrequently these growths are found associated with hypertrophied tonsils, which are often regarded erroneously as the sole cause of the nasal obstruction and the deafness. Probably the safest plan is to first remove the enlarged tonsils—without, if possible, an anesthetic,—and then, after the healing process is complete, the post-nasal growths should be operated upon. Some specialists remove the tonsils and the post-nasal growths at the same time under an anesthetic, and in certain cases this is perhaps the best method. To produce so extensive a bleeding surface, however, might in some persons be attended with considerable risk, partly from the bleeding and partly from the greater risk of septic infection.

If mouth-breathing continues in spite of the operation, and we are confident that the post-nasal growths have been thoroughly eradicated, we should carefully examine the nasal passages in order to make sure that no obstruction exists there. If, in either side, the inferior spongy body is found to be enlarged or hypertrophied, cauterization with the galvanic cautery or chromic acid may be required. In mild forms of obstruction a prolonged but careful use of an alkalo-saline solution with a spray apparatus or a suitable syringe may prove sufficient. If the obstruction be due to spurs upon the septum or deflections, these may require operation, but such forms of obstruction are not common in childhood. If, after the mechanical impediment to free nasal breathing has been removed, the mouth-breathing still continues, means must be adopted to help the person to overcome this habit. The simple plan should first be tried of causing the patient to sit still for fifteen minutes twice or thrice daily, during which he studiously keeps the mouth closed and breathes through the nose alone. If after a time this proves insufficient, an appliance should be provided consisting of a small india-rubber cup, on which the chin rests, the cup being kept in position by means of bands secured round the head. This should be worn for a time at night so as to keep the lower jaw from falling. Or we may use an india-rubber band with a mouth-piece of soft leather secured round the head during sleep, so that the leather mouth-piece covers the mouth and compels nasal breathing. Another plan is to retain the lips in contact by means of long strips of sticking-plaster. Some writers ridicule the use of these aids to nose-breathing, alleging that if the nose and naso-pharynx are really free from obstruction the breathing will naturally become nasal without any such contrivances, and that if there is defective nasal breathing we shall find a mechanical cause in the nasal cavities, which must be removed by suitable treatment. The author is, however, disposed to differ from such writers; he has undoubtedly seen cases remedied by these artificial helps, where the mouth-breathing had persisted after ample breathing-space had been secured in the nose and naso-pharynx.

TREATMENT OF PUERPERAL MASTITIS.

In an article on this subject in the *Brooklyn Medical Journal* for December, 1895, JEWETT states that whatever difference of opinion there may be with reference to the methods of infection, prevention clearly depends on such measures as are directly or indirectly antiseptic. In other words, the indications for prophylaxis are, to promote the resisting powers of the lying-in patient, both local and general, and to maintain as far as possible a surgical cleanliness of the danger points.

Prevention begins in the management of pregnancy. The pressure of tight clothing in the later months of gestation, especially in primiparæ, is obviously inconsistent with the proper development of the nipple, and it directly increases the tendency to occurrence of fissures during lactation.

The cleanliness of the nipple, which is so necessary after nursing begins, should be maintained for at least a month before labor. A borax wash (tablespoonful to the pint) is a suitable detergent. A plain soap-and-water

bath meets the requirements. Daily cleansing keeps the parts free from excessive accumulation of sebaceous material and exuded colostrum.

The domestic popularity of brandy as a nipple lotion during the later weeks of pregnancy is perhaps in part explained by the anesthetic effect of dilute alcohol upon the skin. Surgeons who use alcohol in the process of hand-cleaning can testify to its action in hardening the cuticle and blunting its sensibility. There is reason to doubt, however, that bathing the nipples with alcoholic and other astringent lotions is a suitable preparation for nursing. It is more probable that hardening the skin predisposes it to cracking. It would seem more rational to keep the nipples as supple as possible. The application of fresh cacao-butter, or some equally bland emollient, after the daily cleansing, promotes this end.

Gently drawing out the nipples with the fingers once a day during the last weeks of pregnancy helps to develop them and to inure them to the prospective manipulations of the child's mouth. This practice on the part of the expectant mother is especially advisable if the nipples be small or retracted.—It is the duty of the obstetrician to warn his patient early of the necessity for all the foregoing precautions.

When nursing begins, the delicate cuticle of the mammilla is broken and abraded, and during the post-partum month the septic exposure is especially increased by the contact of hands liable to be infected from the lochial discharges. The occurrence of thrush or of ophthalmia in the child obviously adds to the risk of mammary infection. Hence the need of a cleanly management of the nipples during the first weeks of lactation. The avoidance of septic contact is clearly important. Bathing with a boric-acid lotion after each nursing is useful. A saturated aqueous solution is not too strong. Cleansing the infant's mouth with a similar wash, once or twice daily, is in the interest of both mother and child. Care must be taken not to abrade the buccal mucous membrane, lest the practice invite the trouble which it aims to prevent. For the breasts, more active antiseptics are more effectual, but they require greater care in their use. The author has employed with satisfaction a dressing wet with a mercuric-iodide solution (1:5000 or 1:1000). The mercurial must be rinsed off with boiled water or with the boric-acid solution before nursing. In Tarnier's hospital service there were four abscesses in 1235 puerperæ with whom the boric-acid lotion was employed, and only three in 1727 when this antiseptic was replaced by the bichloride.

In the writer's practice, mammary abscess has become, in recent years, an exceedingly rare occurrence—a fact fairly attributable to the improved aseptic care which the lying-in woman now receives at the hands of the professional nurse.

Milk engorgement is combated by training the child early to nurse. The infant should receive its first lesson as soon as the condition of the mother will permit, usually within six or eight hours after birth, and no effort should be spared in teaching the child to suckle before the milk secretion is fully established. The use of the breast-pump, as a rule, is unsatisfactory; it frequently fails and is liable to bruise the breast.

At the hands of a skillful nurse, massage is often useful for the relief of over-distention, either of the entire breast or of single lobules. It is contra-indicated in the presence of inflammation, and is permissible only when not painful. The breasts should be well oiled in order that the nurse's efforts be not expended in mere friction. The stroking should be practiced in the direction of the lactiferous ducts, from the base of the gland toward the apex. In hypersecretion the compression binder is an extremely valuable measure. It is applied firmly, the pressure being evenly distributed over the breast by a moderately thick layer of cotton wool under the binder. An opening in the centre of the cotton compress prevents injurious pressure upon the nipple. Harris uses compression both as a preventive and a curative measure in mastitis. Horne recommends an elastic bandage in engorgement. Topical applications of oleate of atropia are effectual for diminishing the milk secretion, but they must be used with care lest the secretion be too much repressed. Saline catharsis and the restriction of liquids are indicated in over-free secretion.

A part of the prophylaxis which must not be overlooked is addressed to the general health of the patient. Tonics are indicated in the majority of convalescents from childbirth.

Essential for the prevention of mastitis, is the preventive and curative treatment of nipple lesion. In addition to what has already been said with reference to the prophylactic care of this organ during the early weeks of lactation, it must not be forgotten that prolonged maceration of the nipple in the child's

mouth is injurious. A single nursing need not occupy more than ten or at the most twenty minutes, and regularity should be insisted upon.

The cacao-butter or some other similar inunction may be employed with advantage after each nursing, the surfaces having first been cleansed as already explained.

Excoriations and fissures heal in most cases under proper and timely antiseptic treatment. An ointment of equal parts of subnitrate of bismuth and castor oil may be used as advised by Hirst. The writer prefers to this a similar ointment made with the glycerite of starch. But the glycerin preparation may not always be well borne by the skin. The ointment should be frequently sterilized by heat. Before applying, the parts should be disinfected, a valuable agent for this purpose being hydrogen dioxide. While a host of nipple lotions and other applications have been recommended in these affections, none is more rational or promises better results in ordinary cases than some simple but carefully executed antiseptic plan of treatment.

Pain during nursing may be relieved to some extent by penciling the nipples five or ten minutes before the child is put to the breast, with a one- to five-per-cent. cocaine solution, heated to the sterilizing-point shortly before using. A one- to two-per-cent. carbolic lotion applied in the same manner is sometimes useful as an anesthetic. The addition of one-tenth its volume of glycerin prolongs the action and keeps the skin soft.

Deep and painful fissures may be treated with a solid stick of nitrate of silver. The entire raw surface should be touched. The lips of the fissure being well separated, the caustic point is drawn slowly through it. Care must be taken that no excess of moisture is present, otherwise the dissolved silver salt may trickle over the surrounding surface and healthy structures be injured. A serious objection to this treatment is the exquisite pain it causes. This may be in a great measure prevented by first benumbing the part with a four-per-cent. cocaine solution. After the application of the caustic the nipple may be covered with a piece of lint, well wet with the anesthetic lotion. The affected nipple should be rested, if possible, for twenty-four hours or more. Instead of the solid stick, repeated applications of an aqueous solution of the nitrate of silver may be preferred; in the strength of one or two per cent. it causes little pain and frequently does good service.

In excoriations and fissures that are not too sensitive and do not bleed readily, the nipple-shield may be tried; it protects the nipple from the friction, and to some extent from the maceration, of sucking. Unfortunately for this method, the child as well as the mother has to be consulted, and the substitute is not always accepted. If artificial nipples are used, it is important that they be rendered aseptic by boiling for five minutes in water immediately before using, and not handled with unclean fingers. Similar protection to the nipple lesions is afforded, though in a less degree, by coating the affected surfaces with a pellicle of compound tincture of benzoin. When other measures fail, suspension of nursing for one or two days sometimes succeeds. If both breasts are affected, each may be rested on alternate days. The breast which is not in use should be firmly supported with a compression binder, the nipple being relieved of pressure by the plentiful use of cotton wool beneath the binder.

It is extremely rare that the nipple lesions are so rebellious to well directed treatment as to necessitate the total abandonment of nursing.

THE SYSTEMATIC EMPLOYMENT OF HOT WATER IN SURGERY.

The *Medical Press and Circular* of Nov. 27, 1895, states that PAUL RECLUS recently gave an interesting clinical lecture at the Hôpital de la Pitié, on the systematic employment of hot water in his wards. For the last ten years, he said, he had recommended the application of hot water as a surgical dressing, and he was glad to say now that he had many followers. Hot water has been proved by Koch to increase the power of antiseptics, and for this reason he (M. Reclus) preceded his operations by washing thoroughly the parts with this simple agent. It was not necessary for him to allude to the action of hot water on ulcers, superficial inflammations, lymphangitis, phlebitis, boils, and anthrax, for every one knew what relief was obtained from it; he would confine his remarks to the application of hot water in sprains, crushed limbs, hemorrhoids, prostatitis, and inflammations of the internal female genital organs.

Of the ordinary treatment of sprains—namely, massage, elastic bandage, and prolonged douche of cold water—he had made a kind of synthesis, assimilating one procedure to the other, to the great benefit of the patient; thanks to this simple treatment, the cure was effected in from four to fifteen

days. Immediately after the accident the elastic bandage is rolled around the part as tightly as possible without discomfort, but the patient must in no wise suffer from the pressure. Morning and evening the bandage is removed and the joint plunged into a bath of 118° F., and the temperature gradually raised to 122°, 126°, and even to 134°. Under the influence of the heat, pain ceases immediately, circulation and nutritive exchanges become more active, and these modifications probably accelerate the absorption of the peri-articular exudation. In any case, at the end of ten minutes the joint becomes more supple and movement is rendered easier. Massage constitutes the third term of the treatment.

In extensive traumatic lesions of the limbs he pleads for systematic conservatism. Never, no matter how great the injury, does he amputate the crushed limb; he envelops it in antiseptic substances, and leaves to nature herself the care of separating the dead parts. This practice has the manifest advantage of preserving to the patient, if not the whole of the limb, at least a much larger portion than would be left by amputation.

But this conservatism *à outrance* he would not dare attempt without the help of hot water. His method is as follows: The patient, generally suffering from shock, pale, bloodless and frigid, is placed upon the operating-table and wrapped up in warm flannels, the wounded limb alone being uncovered. The teguments around the lesion are washed with soap and water, shaved, rubbed with ether to remove all traces of grease, and finally bathed in a solution of permanganate of potash. A large irrigator is then filled with hot water (143° F.), and every corner of the wound is washed by the current, the force of which is increased by raising the reservoir above the patient. Frequently a small amount of some antiseptic is added to the liquid. The hot water has the triple advantage of being an effectual antiseptic in itself; of acting as a powerful hemostatic, obliterating the small veins and arteries; and finally, it warms the patient, algid from loss of blood and traumatic shock. The dreaded hyperemia disappears gradually, and frequently before the patient has quitted the operating-table the temperature reaches normal, instead of falling as when amputation has been performed. The subsequent treatment of the wound differs but little from that usually followed.

The use of hot water in inflammatory affections has sometimes given surprising results. In ordinary sore throat and tonsillitis, gargles of water at 131° F. every hour give almost instant relief. For several years M. Reclus has observed the best effects from applications of hot water to hemorrhoids, and it is especially useful in acute prostatitis. The method is simple: the cannula of an irrigator filled with water is introduced gently into the rectum, and the cock turned half on, so as to allow the liquid to penetrate slowly, bathing the parts. The operation is repeated twice daily until cure is complete.

The day is not long past when very competent surgeons proposed and practiced extirpation of the adnexa for pain due to pressure in the vaginal cul-de-sac, certain menstrual troubles, and a dragging sensation in the lumbar region; to-day much graver symptoms are necessary before one has recourse to laparotomy, and Reclus has never operated in these affections of the lower outlet without having first tried medical treatment, of which hot water was the chief factor. He commences by disinfecting the vagina and the uterus, and dilating the os, which he drains freely for a long time; if necessary, the cavity of the womb is curetted and the walls dealt with by the application of tincture of iodine, creosote, or chloride of zinc. This treatment is that of all his colleagues, but where he differs from them is in the manner of applying the hot water. They have recourse to vaginal irrigation, and do not exceed a temperature of 113° F., whereas he employs enemata at 131° F. He does not, however, proscribe vaginal injections, which are certainly useful for cleaning the parts, although they can afford no relief to the congested uterus. The recommendation of vaginal douches is due to an anatomical error, for the uterus and its adnexa can be effectively reached only by way of the rectum; the enema accumulates the warm liquid in the rectal fossa, protruding into which can be felt the internal genital organs.

The enema is taken in the morning, half an hour before rising, at a temperature of 131° F. at least, and allowed to flow in slowly. It should be retained about thirty minutes. Thanks to this treatment, followed in all the details, he has seen a very large number of cases of salpingitis recover.

BLEPHARITIS.

GRADLE, of Chicago, writes on this topic in *Medicine* for October, 1895. He asserts

that in the treatment of blepharitis the existence of the predisposing conditions must be recognized if we wish thorough success in all cases. Where there is obstruction of the tear-passages, no local treatment of the lids will cure the inflammation. When the skin of the lids is of insufficient length, you may at the best get a temporary improvement of the blepharitis, but in spite of all local measures you will have relapses unless you insure complete nocturnal closure of the lids. In those instances, however, where a moderate degree of ametropia is the presumable basis on which the blepharitis has been developed, you can at least attempt to treat the lids without resorting to glasses, if that be the patient's preference, although now and then you may be compelled to return to glasses after a few weeks.

The nature of the application varies with the form of the disease. In squamous blepharitis you will be able to obtain the quickest results by means of a vaselin ointment containing sulphur and resorcin in the strength of about two per cent. This ointment, which the author selected on account of its known efficacy in seborrhea of the scalp—a disease evidently similar to squamous blepharitis,—has proved almost a specific in his experience, and similar results have been recorded by Dr. de Schweinitz. In those instances in which there are no underlying conditions that prevent healing of the blepharitis, the daily application to the edge of the lid will effect a cure in from one to three weeks. It is well, however, to continue the ointment at longer intervals for a good many weeks subsequently, in order to guard against relapses. The mercurial preparations, the white precipitate or the yellow oxide, recommended by most text-books, he has found neither as quick nor as reliable in their action in squamous blepharitis as the sulphur salve. The latter will at times irritate, rarely on account of the sensitiveness of the skin, but usually because it gets into the eye. It is the resorcin which causes the conjunctival irritation if it gets in, and if the patient has this experience the resorcin can be omitted—probably with less rapid benefit. When the scales adhere so firmly as to be detached with difficulty, gentle friction with a chloral-hydrate solution (1 in 10) will facilitate the cleansing.

In the ulcerative form of blepharitis, the first condition for success is to remove the crusts. If the patient does not do it well, the physician must do it. The exposed ulcers can then be cauterized with nitrate of silver in the form of a stick or strong solutions. If this be done every day or two, the ulceration can be stopped usually within a week. But with the ulcerative form there is often also interstitial inflammation, and if this receives no attention relapses will occur. Again, we must search to see whether there are any predisposing conditions which keep up the inflammation, and if there are none we will be able to remove the inflammation in the course of three or four weeks by means of the above-mentioned mercurial salves, provided the blepharitis has not been of very long duration. There are instances which represent a mixture of the squamous and ulcerative types, and in these the sulphur salve proves of great benefit; but where there is no distinct desquamation he has not seen any especial results from the use of sulphur. In some instances he has found a vaselin ointment containing from five to eight per cent. of pyrogallic acid of more rapid influence even than the yellow oxide of mercury. It is not irritating, but sometimes stains the skin temporarily.

In other very persistent instances of interstitial blepharitis he has obtained moderate success by frequent cauterization of the edge of the lid with solid nitrate of silver, even though no ulceration existed. It must be confessed, however, that when the interstitial type of inflammation has existed beyond the middle period of life and is not dependent on remediable predisposing conditions, it is sometimes practically incurable.

THE TREATMENT OF PNEUMONIA BY THE INHALATION OF LARGE DOSES OF NITRITE OF AMYL.

His experimental researches upon the action of nitrite of amyl upon the blood led HAYEM (*Les Nouveaux Remèdes*, Nov. 8, 1895) to essay its employment in the treatment of pneumonia.

His experiments and clinical observations show that much larger doses of this drug may be employed without danger than the classic dose given in text-books, and that the drug is not as dangerous as has been taught. He has in one séance had a patient respire 60, 80, and even 100 drops of nitrite of amyl upon a compress. The results which he obtained in cases of tuberculosis were interesting, but not of as great value as those in connection with pneumonia, where he believes the use of the drug in large doses is to be recommended and seriously considered.

A compress should be used, having within it an impermeable tissue. Fifteen drops are poured upon it, and it is held about an inch from the nose and mouth of the patient, who is told to respire naturally and deeply. When the first amount has evaporated, another 15 drops are poured on, and finally a third 15. Thus in a séance of about three to five minutes, 45 drops are employed. The ordinary symptoms show themselves—redness of the face, acceleration and throbbing of the pulse in the arteries, pressure in the temples, hurried respiration, then great rapidity and smallness of the pulse; sometimes a slight cough, dyspnea, and deep inspiration; later the red color of the face becomes purple, the extremities become cyanotic, as also the lips, with finally a slight torpor.

These phenomena disappear rapidly. When the compress is used, the dose for men should be at least ten drops. In ordinary cases one inhalation a day suffices. In grave cases the author employs two inhalations, one in the morning and one at night. He has never observed an accident that could be attributed to this method of treatment.

The treatment should be continued during the continuance of the disease and for two or three days after defervescence sets in. There is a variation in the susceptibility of patients, and the dose should be modified according to the result produced.

The employment of the nitrite of amyl does not preclude the use of alcoholic stimulants. The effects produced are not upon the duration of the disease nor upon the temperature, but are exclusively local upon the lungs themselves. This effect is shown in a diminution, more or less marked and more or less rapid, of the dyspnea, and in the modification of the sputa, which tend to become less viscid and less difficult to discharge.

The action of the drug is probably upon the vaso-motor system, producing a local hyperemia which aids in the improvement of the circulation in the pneumonic areas and the consequent absorption of the exudate.

The results which the author obtained in patients of low vitality and a very unfavorable hygienic status were very favorable. He had sixteen deaths in seventy-seven cases of non-tuberculous pneumonia.

QUININE HEMOGLOBINURIA.

TOMASELLI (*Clinica Moderna*, May 1, 1895) describes an affection found in the subjects of chronic malaria, the administration of quinine being followed by symptoms resembling paroxysmal hemoglobinuria. Half an hour to two hours after the quinine is given, the patient is suddenly seized with nausea, more or less marked tremor, and high temperature. He complains of a feeling of weight in the loins, and an imperious need to void urine. When the urine is passed, it is found to be sanguineous. Often there is vomiting, diarrhea, and finally jaundice. Hematuria alone, without the other symptoms, may be present. The method of administration and the quantity of the drug used seem to have no influence in relation to this curious idiosyncrasy, which appears to be more or less transmissible, since several members of the same family showed the same intolerance of the drug. The most important predisposing conditions seem to be malaria and the special idiosyncrasy.

Quinine has also been known to cause urticaria, delirium, mania, and vesical spasm when given in malaria; the addition of opium may prevent the latter symptom. In the cases in which quinine causes hematuria, etc., it must be proscribed entirely; even mere rubbing of the skin with the drug has been known to cause hematuria in susceptible subjects. As a substitute the author uses salicin and Fowler's solution, or alcoholic extract of eucalyptus.—*British Medical Journal.*

[See "Collective Investigation on the Influence of Quinine in Malarial Hematuria," in THERAPEUTIC GAZETTE for June, 1892.—ED.]

TINCTURE OF CANTHARIDES AND ALBUMINURIA.

In an article on this subject, published in the *Gazette Hebdomadaire de Médecine et de Chirurgie* for Oct. 26, M. DU CAZAL remarks that at a recent meeting of the Académie de Médecine M. Lancereaux stated, in a communication on albuminuria from a therapeutic point of view, that when uremia has ceased we must seek to modify the altered tissues, and that the medication necessarily varies according to whether it is the connective and vascular tissues, or the epithelial tissues, that are involved—in the first case potassium iodide was to be preferred, in the second case cantharides had given him the best results. Two cases of epithelial nephritis with albuminuria and considerable anasarca had been cured in less than three months under the influence of cantharides; while in the case of a patient who had considerable anasarca, and

passed only 15½ ounces of urine in twenty-four hours, the renal secretion became abundant within two days after the ingestion of 12 drops of tincture cantharides, and in eight days the anasarca had disappeared.

The question under discussion, says the author, is certainly one of great importance. Acute catarrhal nephritis often results in death from the uremic and congestive symptoms it causes, in the presence of which the physician is too often powerless.

Since M. Lancereaux's communication Du Cazal has had occasion to apply the treatment in a number of cases of nephritis, and in four cases out of five has obtained complete recovery in a surprisingly brief period, the fifth case showing considerable amelioration only. Three of these cases were acute nephritis, one consecutive to pneumonia that had been treated by cold water; the others were of scarlatinous origin.

It was his first trial of the treatment, and the rapidity and persistency of the recovery were a great surprise to him. In the third case, one of acute catarrhal nephritis of influenzal origin, the drug caused rapid diminution and then complete disappearance of albumin, although the pathological condition had a manifest tendency to become chronic. Notwithstanding the failure to obtain recovery in the fifth case, says M. Du Cazal, the results ascertained in the others absolutely confirm the account of those communicated by M. Lancereaux to the Académie.

M. Laboullene and M. Olivier have recalled the fact that the treatment by tincture of cantharides was recommended by Grisolle and by Raver, but had been forgotten until M. Lancereaux drew the attention of the profession to it, thereby, in the author's opinion, rendering a great service to physicians and, above all, to patients.—*New York Medical Journal*, Nov. 23, 1895.

THE THERAPEUTIC VALUE OF CALOMEL FOLLOWED BY SALT AND ACID SUBSTANCES.

Dr. Ottolenghi, in his researches on the possible conversion of subchloride into perchloride of mercury in the alimentary tube, followed up the administration of calomel with an equal dose of chloride of sodium, with dilute chloride of sodium (0.75 per cent.), and with mineral lemonade (hydrochloric acid one part, water 150 parts), respectively.

The first results were obtained on nine dogs (the experiments are now being continued with equal success). The animals were given from 0.03 to 0.17 Gm. calomel for every kilo of body-weight. Three of them received in addition an equal quantity of common salt; three, simple mineral lemonade; two, a 0.75-per-cent. solution of chloride of sodium; while only one underwent a mixed treatment of salt and mineral lemonade.

Of these, three dogs died on the third, seventh, and fifteenth day, respectively. In all the nine cases diarrhea was observed; in four, liquid stools mixed with blood. At the necropsy the gastro-intestinal mucosa in all cases showed marked signs of irritation, such as characterize the injection of perchloride of mercury (except when vomiting followed the ingestion of the remedy). In one case an ulcer was observed in the first portion of the intestine that had fixed itself against the psoas muscle; and in another, death followed peritonitis, there being several diphtheritic ulcers all along the intestinal tube. The dogs, although strong and young, continually lost weight, their appetite gradually decreased, and they were generally depressed.

The most characteristic results were obtained with chloride of sodium; in small doses that substance always poisoned the animals.—*British Medical Journal*, Sept. 14, 1895.

FERRATIN.

Marfori (*Archives Italiennes de Biologie*, tome xxiii, fasc. i–ii, p. 62) gives the results of some new researches on the absorption of ferratin and its biological action. He says that the different conditions in which the mucous membrane of the intestine happens to be, largely affect the quantity of ferratin that can be absorbed. In order that absorption may take place, before all things it is necessary that the preparation should not be decomposed in the gastro-intestinal canal, but the sulphuretted hydrogen which is sometimes present in the intestine in large quantities may attack the ferratin slowly and bring about its decomposition. Researches on the absorption of this substance may, therefore, give very different quantitative results according to the greater or lesser intensity of the putrefactive processes going on in the intestine. The large amount of absorption (13.7 to 41.68 per cent.) that occurs after administration of saline purgatives, Marfori ascribes in part to the aseptic con-

dition of the intestine, and in part to the fact that saline purgatives cause a desquamation of the upper layers of the intestinal epithelium, and therefore expose a thinner layer of young cells through which absorption more readily takes place.

When the gastro-intestinal canal is in its normal condition the absorption of ferratin is much less, according to Schmiedeberg, but since the latter's experiments render it impossible to distinguish between the iron of the ferratin and the iron introduced in the food, Marfori proceeded as follows: he administered to the animal a saline purgative, and fed it solely upon milk; the lower part of the intestine was also cleared by saline enemata. About a week later ferratin was given in repeated doses. The amount absorbed varied between eleven and thirty per cent. of the amount administered. With reference to the question whether ill-effects might not arise from long-continued administration of the drug, Marfori found that it was possible to poison animals by injecting large doses into the blood; nevertheless a man would need to take about 2¼ lbs. of ferratin in the course of a month to produce a similar result, assuming as a basis for calculation experiments on dogs. Since he would actually, however, only receive about one-twentieth of that amount, there is no danger in continued administration of the drug—a statement confirmed by clinical experience.—*British Medical Journal.*

PILOCARPINE IN LARGE DOSES IN THE TREATMENT OF THE PNEUMONIA OF INFLUENZA.

POULET (*Les Nouveaux Remèdes*, Nov. 24, 1895) calls attention to the remarkable results which he has obtained by the use of this drug in treating the pneumonia which accompanies the epidemics of *la grippe* and is so potent a factor in increasing the rate of mortality from this disease.

He calls attention to the fact that in a number of instances, though in reality only a few, the general condition of the patient does not correspond to the gravity of the pulmonary lesions which are determined by auscultation and percussion. They are the walking cases, and an examination of external symptoms will not detect the gravity of their condition.

The author, having had two fatal cases, concluded that the drugs he had been employing were not sufficiently active, and that the cases demanded more vigorous treatment; he therefore determined to use the hydrochlorate of pilocarpine in a dose of five-sixths of a grain per day in adults. His results were all that he could ask. Delirium, if it had been present, ceased; the temperature fell; and a calm with sleep came on. To produce this result it was necessary to get the physiological effect of the drug, usually shown by profuse salivation, sometimes by sweatings, and very exceptionally by vomiting. The amount of the drug required to produce this result was about 1⅔ grains, distributed over two days; rarely it was necessary to prolong the treatment over a third day and to give another five-sixths of a grain of pilocarpine. The after-treatment was by the use of less powerful anodynes.

The author obtained very favorable results, but four patients dying of one hundred and eight cases of pneumonia, and two of these did not receive this treatment. One of the other two was *in extremis* when first seen, and the other fatal result followed an imprudent exposure by the patient.

This agent should be reserved for the treatment of pneumonias in the aged, and in all cases arising as the result of an infection.

[We cannot agree with these recommendations, for the depressing effect of pilocarpine upon the heart and general system would seem to contra-indicate its use in the conditions here named.—ED.]

APPENDICITIS.

The *Practitioner* for July, 1895, gives the following interesting *résumé* of the recent literature upon the appendix vermiformis, first calling attention to the paper of CAVAN and BARNHART (*Canadian Practitioner*, March, 1895): The authors of this communication have made a number of investigations referring to the anatomy and pathology of the appendix, some of which are interesting and instructive. It has already been demonstrated that great variations in the length and position of the process occur, and a careful summary of such variations is here given. A mesentery is always present, running nearly or quite to the tip, and in it can sometimes be demonstrated a lymphatic gland into which the lymph from the appendix passes. The pouches which have been described as occurring on either side of the appendix were found to be usually absent, but in the female a peritoneal ligament running to the ovary was shown to be tolerably constant. The process was always distinctly intra-peritoneal,

and the so-called valve of Gerlach was usually imperfect, and probably has no valve-like function. A large amount of lymphadenoid tissue is always present in the walls, and a perfect lumen was almost invariably found. Treves's statement as to the frequent absence of the appendix is not confirmed, and, in fact, appears to be a great exaggeration. A certain amount of mucus was usually found within it, mixed with a certain quantity of semi-fluid fecal material, while fecal concretions were not uncommon, thus bearing out Fitz's statement that of three hundred and twenty-one cases of perforative inflammation, concretions were found in fifty per cent., and in twelve per cent. foreign bodies existed. The bacillus *coli communis* was almost constantly present, and infection with this organism may be looked on as one of the most important causative elements in appendicitis; Hodenpyl found it in the pus of thirty-four out of thirty-five cases.

In the same number of the above journal is found an account of a case under the care of Drs. McPhedran and Cavan, in which a pin was found post-mortem lodged in the appendix of a patient who had died of pyemia. No signs of recent inflammation were present, but there had evidently been a good deal of old mischief lighted up by the intruder, since the walls were thickened and constricted. Several similar cases of the discovery of foreign bodies in the appendix have been recently recorded:

Thus, Roswell Park (*Medical Record*, March 16, 1895) reports two cases in which appendicitis was lighted up by pins within the lumen of the process, and which were cured by operation.

McBurney (*Medical Record*, March 30, 1895) also found two grape-seeds in a healthy appendix of a patient on whom he was operating for an abdominal tumor; although no symptoms had been caused, he took the opportunity of removing it.

On the other hand, Dr. J. Chris. Lange ("Remarks on the Pathology and Medical Treatment of Appendicitis," *St. Louis Clinique*, March, 1895) considers that the foreign-body theory, as the origin of this affection, cannot now be maintained, since it has been shown that fecal concretions are so commonly observed in healthy individuals. He maintains that one of the chief factors in its etiology is that the appendix is a rudimentary organ, or rather remnant of an organ, and that it has but a scant blood-supply, only one artery passing to it—and that without any collateral anastomosis, except in the female, in whom a small vessel runs along the appendiculo-ovarian ligament; and in this way he seeks to explain the fact that the disease is four times more common in males than in females. Torsion of the process, bringing about arterial or capillary thrombosis and a resulting diminution of the vitality of the walls, together with infection by the bacillus *coli communis*, is looked on as the direct cause of appendicitis. Lange admits that wherever pus exists, surgical treatment is required, and then discusses *in extenso* how best to prevent its formation, —viz., by absolute rest of the bowel and antisepsis of the tube. Arrest of peristalsis is obtained by the use of morphine, while powdered charcoal, subnitrate of bismuth, guaiacol and calomel are relied on to render the bowel aseptic. Purgatives can only do harm.

The origin and nature of the concretions or calculi found in the appendix form the subject of a communication by Rochaz to the *Revue Médicale de la Suisse Romande*, 1894, No. 12 (*American Journal of the Medical Sciences*, June, 1895). He states that they are always formed in the appendix itself and are usually single. Their general shape is elongated, their color brownish, and their consistence as often hard as soft. They are frequently laminated, and the nucleus is generally lighter in color than the envelope. Chemically they are very similar in nature to human feces. They are more frequently present in men than in women, and are not induced by constipation. Changes in the normal shape and position of the appendix induced by strictures and adhesions seem to be responsible for their formation in the majority of cases.

At the Munich Medical Congress the subject of appendicitis was discussed, and records of the meetings are to be found in the *Münchener Medicinische Wochenschrift* (April 16, 1895) and in the *Wiener Klinische Rundschau* (April 28, 1895). The subject was opened by Sahli, who, after noting the change in nomenclature which has recently taken place, and with reason, proceeded to discuss the nature of the tumor so often felt in these cases, pointing out that it rarely consisted of feces, but rather of thickened intestinal walls, exudation, and infiltrated fascia transversalis and abdominal wall; while if pus existed, it also would add bulk to the mass. The existence of a sero-fibrinous exudate is, in his estimation, entirely theoretical and absolutely opposed to the results of the many exploratory punctures which he had

made. He considers that pus is always formed in these cases, and the occurrence of spontaneous cure to be due either to the absorption of the pus or to its evacuation into the bowel or elsewhere. As to the relative frequency of cures, he quotes on the one hand Renvers's two thousand cases treated in the German Army, in which only twenty-six per cent. recovered without operation; while of 7213 cases treated by four hundred and sixty-six Swiss doctors, only 476 were operated on. Of those not dealt with by operation, only 8.8 per cent. died, and relapses occurred in twenty per cent. The treatment recommended consists in small doses of opium, a diet restricted to fluids, and the application of an ice-bag. Operation is advised in those instances where, in spite of such measures, the symptoms persist at the end of the third day unchanged or aggravated, although occasionally it may be permissible to maintain expectant treatment till the eighth day. Evacuation of the pus, and, if possible, removal of the appendix, should be undertaken. The same treatment is also recommended for relapses or recurrences.

HELFERICH followed, and, after alluding to the anatomical position of the appendix and its character as a diverticulum, stated his belief that appendicitis usually commenced as a result of retention of the secretion, in consequence of kinking of the tube and contraction of its orifice. He agreed with Sahli as to the usually purulent character of the exudate, and, while admitting that such could be entirely absorbed, thought the surgeon ought not to reckon upon it; he could not agree with him, however, as to the advisability of waiting six or eight days, since it was clearly proved by Fitz's statistics that fifty-six per cent. of the fatal cases occurred within the first week. Diffuse peritonitis occurs in two forms: one the diffused septic variety, with symptoms of septic intoxication soon supervening and rendering the case quite hopeless, and the other a progressive fibrino-purulent form, the prognosis of which was somewhat better. In all such cases do not hesitate to operate immediately, unless the patient is so profoundly collapsed as to render operation unjustifiable. Relapses frequently demand interference, especially if the patient is not quite well between the attacks.

SONNENBURG objected to Sahli's statement that all cases of appendicitis resulted in suppuration, and drew a great distinction between the simple form in which a sero-fibrinous exudate was met with and the suppurative variety. The simple form results from kinking of the mesentery of the appendix, owing to the great mobility of the little process, and to retention of and changes in its contents. Localized collections of pus may thus form within it, as also fecal concretions, while adhesive peritonitis is usually lighted up. Various clinical manifestations may be induced, including not only the typical mild attack, but also seizures of what has been termed *appendicular colic*. In the usual variety the symptoms commence with a slight pain and fever, but are very different from the stormy onset with rigors and high fever of those cases in which ulceration or perforation is present. Operation is rarely called for under these circumstances, except when the condition persists unchanged for some considerable time. On the other hand, as soon as there are evident signs of suppuration, as indicated by the severity of the symptoms, it is always wise to interfere and remove the appendix.

DR. SCHELL (*New York Medical Journal*, April 20, 1895) has had the opportunity of examining the appendix in one or two cases of the early stages of the disease, and records here the phenomena he has observed. The destructive changes began in the tubular glands which are so abundant in this region, and through the ulcers thus induced the infective material evidently gained access to the lymphadenoid tissue placed beneath, and in this suppuration occurred and extended laterally under the mucous membrane beyond the original superficial lesion. It is thus easy to understand how stenosis and contraction of the lumen of the tube are produced in cases which recover. The fact that the appendix is also frequently involved in typhoid fever is commented on, and a certain percentage of the cases of perforation in this disease are always due to the lesion being located in this region. The value of purgatives is also discussed, and the author considers that in the simpler cases it is often wise to unload the bowels by the cautious use of an enema, so as to remove irritating ingesta, fermenting intestinal secretions, and fecal masses. In the more severe cases, however, nothing but harm can follow, since active peristalsis is lighted up, and this tends to break down and tear adhesions, to open perforative ulcers which have been closed by inflammatory lymph, and to spread infection by the movement of the intestines.

At a meeting of the New York Surgical Society (*Annals of Surgery*, May, 1895, p.

597), DR. STIMSON raised the question whether it was not better practice in certain cases to break down adhesions and institute a definite search for the appendix after an abscess had been opened, presuming that too great risk was not thereby incurred. The generally accepted idea is that after one attack of suppurative appendicitis sufficient changes are set up in the neighborhood to render the patient exempt from the risks of further attacks. Two cases had occurred to him recently, however, that indicated that this was not necessarily the case, since one patient, after what had been undoubtedly two attacks of suppurative inflammation, presented himself for the cure of a resulting hernia, and on operation it was found that the appendix was free within the peritoneal cavity and practically devoid of adhesions.

DRS. J. D. BRYANT and FOWLER fully corroborated Stimson's statement that frequently after an attack of suppurative appendicitis the appendix is fully as capable of originating another attack as formerly.

DR. RUSHMORE considered that, although such cases did occur, it would be better practice to defer removal of the appendix till a second attack, should it appear unduly dangerous and difficult at the first operation, as by that time it might be anticipated that the adhesions would be firmer and more resistant, and hence less risk of infecting the peritoneal cavity would be present.

ON THE SURGICAL TREATMENT OF PERITYPHLITIS.

HAENEL, of Dresden (*Münchener Medicinische Wochenschrift*, March 26, 1895), has treated twenty-one cases of perityphlitis in the past six years, of which eleven recovered without operation, while seven were dealt with surgically in the acute stage, and in three the appendix was removed on account of relapses. In dealing with the question of pathology, he discusses the idea as to the cæcal origin of the affection, and states that the post-mortem records obtained at Munich fully bear out the generally received idea that the appendix is primarily involved, since in ninety-one per cent. of the fatal cases the mischief had certainly started within it. This may have been due in some measure to chronic constipation, although the influence of foreign bodies or fecal concretions is very doubtful; more probably retention of secretion in the appendix as a result of swelling of the mucous membrane or defective action of Gerlach's valve, combined with increased activity of the contained micro-organisms, accounts for most of the cases. If perforation occurs, suppuration is sure to follow, and the pus may either be widely diffused through the peritoneal cavity, or may be encysted within it, or may burrow in different directions in the retro-peritoneal tissue. Thus it may point directly backward in the lumbar region, or may run downward under Poupart's ligament into the thigh, or may, again, find its way upward behind the ascending colon to constitute a subphrenic abscess. In rarer cases the pus has pointed in the left side, or gravitated into the pelvis and opened into the rectum. As to treatment, the author considers that active interference is necessary (1) for suppuration, (2) for perforation peritonitis, and (3) for relapses. The existence or not of pus in any particular case is often a matter of considerable doubt, since there is no pathognomonic sign of its existence; the totality of the symptoms must be considered and the exploring needle not relied on, since negative results are worthless and positive evidence may be dangerous. When once it has been established that pus is present, the sooner operation is undertaken the better, as the only danger of the proceeding lies in its being delayed too long. The incision recommended is one parallel to Poupart's ligament, and we are advised always to make an effort to reach and remove the appendix, if such can be accomplished without much difficulty; if it is left, a fecal fistula may persist, but even if this does not close spontaneously an operation can easily be undertaken for it later on. If the abscess is retro-peritoneal, it must be dealt with in a similarly energetic manner and early incisions made into it. Thus the author is able to report one case of secondary subphrenic abscess cured after opening it above the liver, and also in the cæcal region. As to diffuse peritonitis, it is stated to be the cause of seventy per cent. of the deaths from this disease. A distinction is drawn, as pointed out by Mikulicz, between the diffuse septic form of the affection and the progressive fibrino-purulent form, the prognosis being much worse in the former than in the latter. The author, however, seems somewhat to doubt the efficacy of laparotomy in such cases, stating that good results as well as bad may be obtained by opium. As to the third indication for operation—viz., the occurrence of relapses—the frequency of this sequel is first discussed, and statistics quoted which

go to prove that it is met with in a good deal less than half the cases. It is difficult, however, to be certain of these figures, since it is impossible to follow all the cases for a sufficient length of time, some of the relapses not occurring for years. The advisability of operating on these patients is discussed at some length, and it is pointed out that, although the actual mortality is comparatively small, there is some risk of lighting up dangerous inflammation by such interference by breaking down protective adhesions. If undertaken at all, it should always be performed during the interval following an acute attack.

A NEW METHOD OF HYSTERECTOMY.

RICHELOT (*Universal Medical Journal*, July, 1895) has devised an original and improved method of performing this operation. He claims for his procedure great advantages over the current ones, which are long and laborious, and over the quicker ones sometimes employed, which are frequently attended with danger. The principal advantage of his method lies in the complete absence of ligatures and sutures, forcipressure only being used. A scalpel, a dissecting-forceps, a long and a short hemostatic forceps, and finally two long Richelot forceps, provided with a long "bite," comprise the necessary armamentarium. The patient is placed on her back, and the operator takes his place between the separated limbs. The vagina is first thoroughly disinfected; for, in the course of the operation, the surgeon's hand passes alternately into that canal and the abdomen. The usual abdominal incision being made, the uterus is enucleated and laid on the abdomen, covering the lower angle of the operation wound. When fibromata occupy the lower segment of the organ, the usual fragmentation is at once practiced; when, however, they are interstitial, they are left untouched and the operation is proceeded with as follows: An interior peritoneal flap is fashioned by means of an incision across the anterior surface of the uterus, extending from one broad ligament to the other. The broad ligaments are thus liberated and thrown downward over the bladder. The left index finger is introduced into the vagina, and the anterior cul-de-sac is incised with a large pair of scissors, the discission of the vagina being pushed nearly as far as the sides of the os. Then, leaving the uterus *in situ*, the broad ligament on one side is seized by the hand quite close to the uterus, an opening in the posterior cul-de-sac is made with the point of the scissors, and through this orifice is passed, *per vaginam*, the posterior limb of Richelot's forceps, the anterior limb being thrust through the corresponding hole in the anterior cul-de-sac. The forceps is then thrust from the vagina from below upward, and, guided by the hand holding the broad ligament, is placed on that ligament. The same manœuvre is practiced on the other side by means of the second pair of Richelot's forceps, both ligaments being seized by the forceps and liberated from their extreme attachments. The uterus now hangs only to the posterior cul-de-sac, which is in its turn divided with a few snips of the scissors, and, as this section gives rise to hemorrhage, three hemostatic forceps are placed in position. A plug of iodoform gauze is inserted into the upper part of the vagina, none being placed in the abdomen. The abdominal incision is sutured and the operation is over. Five hysterectomies were thus performed by M. Richelot, four being for fibromata and one for cancer; the four first mentioned were successful. The duration of the operation varies from thirty to thirty-five minutes, and no complications need be feared during the healing process.

URETHRAL DIVERTICULA.

BAGOT (*Medical News*, August 31, 1895) states that urethral diverticula or pseudo-urethroceles, though sometimes classed together with true urethroceles or dilatations of the middle third of the urethra, constitute a distinct affection, differing from the latter both in etiology and physical signs. The urethral diverticulum consists of a cavity or pouch situated in the urethro-vaginal septum, usually about the middle third, and communicating by a narrow opening with the urethra, which is not dilated, but is of normal calibre.

With regard to diagnosis, on examination a firm, tender swelling is found situated in the urethro-vaginal septum, usually about its middle third; but when the cyst is of large size its upper limits may reach the cervix or even further, and, as in Tait's case, pass up into the lateral fornices. On applying pressure to the tumor a quantity of thin ammoniacal pus is discharged from the urethra. In Santesson's case, however, compression of the tumor caused its contents to be evacuated backward into the bladder. By examination with the electric urethroscope, the opening in the floor of the urethra can be detected. Should any

difficulty be experienced in doing so, the pus will be seen welling up from the aperture on applying pressure to the tumor while the urethroscope is being slowly withdrawn. That the tumor is not a simple dilatation of the middle third of the urethra, is shown by the fact that a large-sized sound, introduced into the urethra, does not enter the sac during its passage into the bladder; but by carefully searching along the posterior wall of the urethra with a probe the opening can usually be discovered and the probe passed into the cyst. Unlike a true urethrocele, the pseudo-urethrocele can be palpated as a definitely outlined cyst after its contents have been expressed.

Treatment consists in dissecting out the cyst and closing the cut surfaces with silk or catgut sutures. Passage of the catheter after the operation is unnecessary unless retention of urine supervenes. After dissecting out the diverticulum, should the parts not appear sufficiently healthy to allow of immediate reunion, which will be of rare occurrence, a soft catheter is introduced into the urethra and allowed to remain for from two to four days. The wound in the septum is dusted over with iodoform and covered with iodoform gauze. The cut surfaces are then allowed to granulate up, or secondary suture may be performed.

MOVABLE KIDNEY.

FRANKS (*British Medical Journal*, Oct. 12, 1895) holds that undue mobility of the kidney occurs far more frequently than is generally admitted. He thus indicates his conception of a movable kidney:

The patient lies in the dorsal position. Standing on the right side the surgeon passes the four fingers of the left hand underneath the hollow of the loin below the twelfth rib. The thumb in front encircles the abdomen just below the costal arch, but without exercising any pressure. The patient is directed to draw a full breath. Immediately before expiration begins, the surgeon presses with his thumb as deeply as possible, following the liver as it recedes during expiration whilst the fingers behind press the loin forwards. If now with the right hand the kidney can be felt lying entirely below the grasp of the left hand, the right kidney is pathologically movable. If the right hand presses on the tumor so felt, whilst the left hand relaxes its grasp gradually, the tumor can be felt to slip between the fingers of the left hand and to disappear upwards toward the position normally occupied by the kidney; this sensation is pathognomonic of a movable kidney. A kidney which can be felt to descend so that its lower half may be felt, but which moves back on expiration, is physiologically movable.

Normally the kidney is kept in place by a fatty capsule and connective tissue. After death we may find this pretty firm and affording apparently some considerable amount of support to the kidney; during life the fat partakes more of a fluid than a solid character, and would unquestionably allow of a certain amount of motion, yet that it does exert some restraining influence is shown by the greater frequency of movable kidney among the lean and emaciated than among the well nourished.

Of more importance is the connective tissue which binds the kidney to the loin behind and to the various abdominal viscera above and below, and in front. In the latter position it is assisted to no inconsiderable degree by the peritoneum reflected over its anterior surface. In probably a majority of cases these connective-tissue adhesions and the disposition of the peritoneum are sufficient to maintain for a time the kidney in its place, even where causes operate which would dislocate an organ with less firm connections. These connections are not in themselves sufficient to withstand alone the weight of the kidney, but they are important from another point of view. Though they may not keep a kidney in its place when once it has become dislocated, they are mainly responsible for the symptoms which accompany a movable kidney and which may make life unendurable.

As to the great factor for maintaining the kidney in its proper position, His and Cunningham have clearly shown that the form of the kidney itself and the influences exerted upon it during life, or rather in the unopened body, vary very materially from what is usually observed in the dissecting-room.

Professor Cunningham thus describes the results of his study on the kidney. In every case and on both sides there is on the anterior surface a point of maximum convexity, a place where the kidney substance is raised in the form of a marked prominence or bulging, which may slowly rise from all sides to a blunt summit, as is usually the case in the left kidney, or which may extend across the anterior surface in the form of a rounded ridge, as happens more commonly in the case of the right kidney. Above and below this eminence the anterior surface falls away towards each extremity in the form of an

inclined or sloping plane of greater or less obliquity. These impressed districts indicate direct pressure exercised on the anterior surface of the kidney in two directions, and the intervening eminence is the secondary result of this counter-pressure. Upon the upper inclined plane of the anterior surface of the left kidney are placed the supra-renal capsule, the stomach, and the spleen. These exercise a downward and a backward pressure. Upon the inferior inclined surface of the left kidney the counter-pressure is produced by the intestinal canal, which presses as a rule upwards and backwards. On the right side the upper inclined surface is occupied by the liver, whilst in contact with the lower inclined area is the colon. In many cases the colonic or inferior sloping surface presents a high degree of obliquity.

We see then, that on the right side we have two forces acting on the kidney: one, acting from above, presses the kidney downwards and backwards; the other, acting from below, presses the organ upwards and backwards. The resultant of these forces will be a force acting almost directly backwards, wedging, as it were, the kidney into the position it usually occupies. Now the pressure from above is practically constant; it varies somewhat with the position of the body, and also during respiration, but these variations do not really affect the question, for the liver, kidney and colon move together. Under these circumstances the relative position of the forces is practically unaffected. The pressure from below varies to a much greater degree with the varying conditions of the intestine itself; it diminishes when the bowels are empty; it increases with flatulent distention; still the general direction of the pressure, upwards and backwards, on the inferior inclined plane of the kidney, is maintained. These normal variations of the two forces seem to have no greater effect than to alter slightly the contour of the kidney. In one kidney we find the transverse ridge on the anterior surface near the middle of the organ; in another we find it below the junction of the middle and lower thirds.

But if the balance between these forces be lost, so that their resultant force acts in a more or less downward direction, it is easy to conceive how the kidney itself, aided by this downward force and by its own weight, would gradually sink, making a way for itself behind the peritoneum which lines the loin below it.

There are several ways in which this balance of pressure may be destroyed. An obvious example is after parturition. We know that normally the pressure within the abdomen is positive, but immediately, and for some days at any rate, after parturition, the pressure becomes negative. If during this period the patient assumes the erect posture, the pressure from above acts downwards and backwards unopposed, and unless the cellular connections round the kidney are sufficiently and unusually firm, the kidney must gradually yield to the combined forces and slip from its place. Each act of parturition, with shortened respites in bed, will increase this tendency, and it is difficult to understand how the kidney, having once slipped from the control of the colon, could ever regain accurately its relative position so as to be wedged between it and the liver, as we have seen it normally is. Probably a movable kidney, when it slips into place in the recumbent position, lies behind the colon and below the liver, its anterior surface being flattened, so that the wedging forces can no longer act.

Another method by which the balance of power may be destroyed is by traumatism. If by means of a violent shock, such as a fall from a height onto the feet, or by means of extreme pressure, as the passage of a cart-wheel across the body, the kidney be forced downward out of its bed, the equilibrium of forces is disturbed, not to be again restored.

Besides the ridge and planes on the anterior surface, there are other markings on the kidney. The duodenum almost invariably rests upon the anterior surface of the kidney, and it gives rise to a very evident duodenal impression. The outer convex border of the kidney of both sides presents a marked thickening opposite the eminence on the anterior surface. In the neighborhood of this thickening a faint groove passing upwards indicates the place where the border of the kidney is "clasped" by the last rib. This is worthy of notice, as it supports those who advocate fixing a movable kidney to the last rib. The posterior surface of the kidney exhibits three well marked areas, which correspond respectively to the psoas internally, to the quadratus lumborum externally, and to the diaphragm above. Between the areas marked by the psoas and the quadratus lumborum muscles, dimples corresponding to the transverse processes of the lumbar vertebræ may sometimes be observed in spare subjects.

The symptoms of movable kidney are for convenience divided into three groups, appertaining respectively to the mobility of

both kidneys, to the mobility of the right kidney, and to that of the left.

In the first group are included a dragging pain in the abdomen, and a sense of weight in one or the other side, neuralgic pains in the loin or shooting down the thigh, fatigue on slight exertion, and general debility, which makes any effort a weariness to the flesh. Many of these symptoms may, with some justice perhaps, be attributed to the dragging upon the renal vessels and nerves.

The second group comprises those symptoms which are recognized in their severer form under the term "the gastric crises." In the milder form the chief complaint is indigestion, flatulence, and sometimes vomiting. The following points can generally be elicited: the indigestion does not depend on the kind of food taken—one patient told the writer she had made the round of all sorts of food, and that nothing had made any difference; pain generally comes on about one or two hours after food, and large quantities of gas are frequently belched up; the usual remedies for indigestion and flatulence are of little if any use; the only relief obtained is that by lying down. Such a train of symptoms should always suggest a movable kidney on the right side. These symptoms can be explained on purely mechanical grounds. In one case with such symptoms, operated on by the author, the kidney was found lying in the right iliac fossa attached to the descending portion of the duodenum; when the kidney fell toward the iliac fossa it had so dragged upon the duodenum as to kink it; it was obvious that in that state nothing could pass out of the stomach. The stomach was in a state of dilatation. The symptoms disappeared when the kidney was fixed in its normal position.

The normal relation of the descending duodenum is on the inner portion of the anterior surface; sometimes it covers more than half the surface of the kidney, but this is unusual. It occasionally lies on the renal vessels, not touching the kidney. The kidney and the vertical portion of the duodenum are bound together by connective tissue, which may sometimes be extremely lax and weak, sometimes may have a degree of strength. Both organs are retro-peritoneal. In many cases when the kidney slips, its attachment to the duodenum may be so slight and lax, or the surface in contact with the duodenum may be so small, that the kidney disengages itself from the duodenum, and may become freely movable in the abdomen, without in any way interfering with the gut. Under such circumstances we have, what is a not uncommon experience, a freely movable kidney presenting no symptoms—a condition very difficult to explain on the theories usually laid down. Where, however, there is close contact, as the kidney descends behind the peritoneum it gradually drags the duodenum with it and produces gastric symptoms. These gastric symptoms are not observed when the left kidney alone is at fault. The author operated on a case of left-kidney luxation and found the splenic flexure of the colon firmly fixed to the kidney; as this organ fell backward it carried the colon with it so that it became kinked, forming a narrow band and producing intractable constipation. Replacing the kidney cured the patient of her suffering.

As to treatment, nephrorrhaphy is, comparatively speaking, a safe operation. The author believes in suturing the organ to the twelfth rib, and prefers catgut. The capsule of the kidney should be divided at the place where it is proposed to pass the sutures, and should be partially stripped, and the capsule and the renal parenchyma sutured to the wound, or to the last rib if preferred. The patient should be kept lying in bed for at least six weeks.

REMOVAL OF TUMORS FROM THE URINARY BLADDER.

FENWICK (*Medical Press and Circular*, Oct. 9, 1895) states that the value of an intelligent and skillful electric cystoscopy in determining the presence and character of vesical tumors, and in indicating the propriety of removing them, is amply borne out by the results obtained in a series of cases in his practice. Although benign papillomata of the urinary bladder are characterized by the symptomless appearance of blood, causelessly and intermittently, in normal urine, there are some papillomata which evoke symptoms markedly resembling those of stone. This deviation from the classical type is due to the length of the pedicle and stalk, which favors the free excursion of the tumor and allows it to get swept into the orifice of the bladder and to act as a partial or complete plug. Benign papillomata, therefore, readily fall into two divisions—the non-obstructive and the obstructive. Of these, the former are by far the more common.

He holds very strongly that the calculus sound should not be employed in either class; in the non-obstructive group the symptoms are so definite and so dissimilar to stone that

its employment in males under fifty is not only useless but detrimental—after fifty, cases are encountered in which small smooth uric-acid stones, lodging behind an upraised prostate, produce symptoms similar to those of a benign growth. In the obstructive group of papillomata, a cross-examination of the onset-symptoms will permit of the diagnosis of pedicled tumor being made, rather than that of stone, and a distinct danger is avoided if the patient's bladder be not interfered with: backward renal pressure has already been exerted by the plugging, there is always more or less residual urine, and the sound or the catheter is extremely prone to induce cysto-pyelitis.

In all cases in which a vesical growth is suspected, it is much wiser to employ the cystoscope in a period of calm between the attacks of hematuria, and to arrange that the bladder be full of urine at the time. In all cases of growth, if the bladder has not been meddled with, the urine in these intervals will be seen to be quite clear and the growths are exhibited to their best advantage. Failing a cystoscopy, a finger-sized supra-pubic opening is the best method of examination.

The best results have been obtained in cases which have not been sounded or catheterized. The true surgery is to make the operation coincidently with the examination. All those cases in which the operation has been performed immediately after the cystoscopy have done well; and these remarks apply equally to operations for the removal of stone from the bladder.

Women seem more prone to produce pedicled papillomata than men. Many of these growths can be cleanly removed through the dilated urethra, but the surgeon should always obtain permission to operate through the vaginal septum or supra-pubically, in case he should find that the base is extensive or the pedicle very thick. In men, the only certain surgical route is the supra pubic.

It is advisable in every case of subsessile or pedicled growth to remove the base cleanly, either by cutting or by crushing and cutting. The curette is only indicated in large sessile patches or secondary minute splashes. The bleeding from the base of the ablated tumor should be arrested before the patient leaves the table; the best means to effect this is probably a ligature, left hanging out of the bladder, or the application of the hot iron through a Keith tube.

Munching or squeezing of the healthy mucous membrane in the neighborhood of the growth fosters the subsequent appearance of growths in the traumatized areas. It is questionable whether the removal of a small sessile patch is advisable in the male before thirty-five years of age, as the rate of growth of such patches is often very slow. To determine this question, the cystoscope is of the utmost value. The longer the history of a non-obstructive tumor, the denser will its structure be.

The hard, slow-growing, single button of carcinoma can be removed with a fair prospect of successful delay in the course of the disease, provided the base and the submucous tissue beneath the tumor be removed with the knife. Munching the surface of a carcinoma and leaving the base is tantamount to an increase of the rapidity of its growth.

Malignant growths situated on or near the trigone do not repay removal, and always resent interference. If they obstruct, they had better be treated by supra-pubic drainage. All infiltrating growths can be detected by rectal or bimanual examination under ether. Multiple or "contact" growths, as discovered by the cystoscope, are inoperable. Small, single, indolent, malignant growths may be removed even when they have so far advanced as to become glued to the muscle-coat, provided the entire thickness of the subjacent bladder-wall be resected with them; this is, of course, only possible in the anterior, lateral, or posterior wall of the middle and upper zones. When the peritoneum is included in the ablation, free drainage of the bladder must be maintained in order to afford the bladder wound time to heal.

The seventy ablations which form the basis of Fenwick's paper include recurrences. He has had five deaths, two as the direct result of the operation, three as the result of renal complications in carcinomatous cases at or about the third week after operation.

A NEW VIEW OF THE TREATMENT OF VOMITING AFTER CHLOROFORM ANESTHESIA.

In the *Revue de Chirurgie* for September, M. LEWIN relates his experience with the use of vinegar to prevent vomiting, in one hundred and seventy-four cases of chloroform anesthesia. In one hundred and twenty-five cases he obtained complete success, no vomiting of any kind having been produced. In forty-nine cases there was vomiting, but it was generally slight and the rejected material was rather viscous. The method should be very carefully carried out, in order to insure

good results. It is known that chloroform is eliminated almost exclusively through the lungs, partly as free chloroform and partly as formic acid and chlorine; the chlorine exercises an irritating action on the larynx and the trachea, and this is one of the principal causes of the vomiting. When a cloth saturated with vinegar is held over the nostrils, the chlorine combines with the acetic acid as fast as it is evolved, and forms trichloracetic acid.

It is very dangerous to use pure chloroform, and all medicinal chloroform should contain a certain quantity of alcohol, which renders its decomposition during narcosis more difficult. The dehydrating action of the anesthetic influences the endothelium of the blood-vessels and causes coagulation of the blood, to which the slackening of the circulatory movement and the feeble activity of the chemico-biological phenomena in the capillaries also contribute. Hence the wisdom of having the patient breathe air heavily laden with moisture, after the action of the chloroform is suspended. Under such circumstances acetic acid is recommended by the author as a powerful factor in restoring to the blood its normal fluidity, owing to a property that it derives from the water it contains, and to its energetic power of destroying the fibrin. Moreover, acids in general are stimulants of the respiratory tract. The foregoing considerations seem sufficient to explain the phenomena, without bringing forward a hypothetical action of the vinegar, or of acids in general, on the vomiting centre, by the intervention of the vaso-motor nerves.

The following observations were made in cases where this treatment was employed. Immediately after the application of the vinegar the pulse became strong, respiration grew deeper, the face regained a little color, and the corneal conjunctiva became bright. The appetite returned at the end of a short time, and the patients occasionally complained of hunger on the very day of the operation; frequently they did not suffer at all from the general uneasiness which nearly always follows chloroform anesthesia. It does not follow from this, says M. Lewin, that the application of the vinegar always suppresses the vomiting, for, in certain cases where the patients are very nervous, or are suffering from affections of the lungs or of the stomach, vomiting may occur in spite of the treatment.

The method of application is as follows: A piece of linen of about the size of a napkin is saturated with vinegar and lightly wrung out; it is then placed on the patient's face, over the mask, which is afterward carefully withdrawn—care being taken not to allow the air to gain access to the face too suddenly, for it ought to pass through the linen cloth before being inhaled. This cloth must be kept on as long as possible—three hours at least, and better still during the entire day, for occasionally the presence of chloroform in the expired air has been observed for more than two days after the narcosis. If the cloth is removed too soon, nausea will set in; if it dries very rapidly, it must then be replaced immediately with a fresh one, which is put over the first cloth before the latter is drawn away, in order to prevent the air from touching the face. If the wet cloth is annoying to the patient, it may be held away from the face with a mask. It is of the greatest importance to conform to these rules, for failure to observe them has prevented good results from following the application of the vinegar. In administering chloroform it is preferable to use small doses, which is the only rational method, for the mask should not be raised during chloroformization, whereas by the method of large doses it is often necessary to lift the mask after having produced a profound narcosis, and in this way the air reaches the patient's face too suddenly and causes nausea and vomiting, sometimes during the operation, sometimes after it.

CONTUSIONS OF THE LUNGS.

Contusions of the lungs, without wounds of the chest-walls or fracture or dislocation of the ribs, are not rare accidents, yet the text-books say nothing about them. It is, therefore, of interest briefly to review the main points brought out in an instructive paper on this subject by PROF. JOHN PARMENTER (*Buffalo Medical Journal*, October, 1895). Every organ—the heart, the pericardium, the aorta, and the esophagus—has been injured by apparently trivial blows on the chest, and the lungs do not escape. The elasticity of the chest-walls permits a considerable incurve and rebound without permanent injury. The elastic lung would also escape, were it not, as Gosselin has pointed out, that a person about to be hit instinctively closes his glottis, prevents the escape of air under the impulse of the blow, and makes the lung, for the time being, a solid body. The delicacy of the tissues, and especially of the capillary blood-vessels and air-sacs, together

with the fact that the two pleural surfaces are in exact apposition in a normal state, suffices to explain the serious nature of these injuries.

Jobert distinguishes three degrees of bruises. In the first the capillaries only are ruptured; the pulmonary tissue is not torn. In the second the alveoli, bronchioles and vessels are torn, and blood depots are scattered here and there through the lung. In the third the bronchi and large vessels are torn. Bruises of the first and second degree are usually recovered from, but patients often die very rapidly from those of the third. Certain complications — chief among which are hemothorax, pneumothorax, and emphysema—are common in severe contusions of the lung.

The symptoms in a severe case are those of shock and collapse, with dyspnea and profuse hemoptysis. There are sonorous râles, absence of vesicular murmur, with amphoric breathing and metallic tinkling.

Various complications are almost certain to occur in a severe case. They are bronchopneumonia, traumatic pneumonia, gangrene, pleurisy, etc.

The prognosis depends on the degree and extent of the injury, and its complications. Recovery follows if the lesions remain aseptic, and they usually do, even if hemothorax and pneumothorax are present.

In the treatment of the graver forms of contusions of the lungs, the shock must be combated by hypodermatic injections of brandy and ether, and the application of warmth to the body. For the pain and dyspnea, morphia subcutaneously often acts magically, and may be assisted by the use of cold locally. The hemorrhage frequently demands immediate attention. Auto-transfusion by elevating and bandaging the patient's extremities should be at once employed. If this, with absolute rest in the recumbent position, does not relieve the bleeding, and the dyspnea and cardiac embarrassment increase, with a medium-sized trocar and using the strictest antiseptic precautions enough blood may be removed from the chest cavity to diminish the pressure. If, as is frequently the case, the cannula becomes clogged with clotted blood, we must operate as for empyema and turn out the clots. Unfortunately, this frequently starts up the hemorrhage again, and is only to be resorted to when the patient's life is in imminent danger.

Pneumothorax can be relieved by paracentesis. Emphysema requires long and deep incisions into the swollen area, followed by judicious pressure.—*International Journal of Surgery*, November, 1895.

SERO-THERAPY IN THE TREATMENT OF CANCER.

The favorable results reported by Emmerich and Scholl have already been quoted in the THERAPEUTIC GAZETTE, and it will be remembered that these scientists claim to have found in the serum of erysipelas a specific remedy for cancerous growths. The treatment, according to them, was harmless and some of the cures were astonishing. According to BRUNS (quoted by the *Journal de Médecine et de Chirurgie*, Nov. 25, 1895), these results are not to be realized. He treated five cases—four of carcinoma or sarcoma and one of malignant lymphoma. The diagnosis was previously made by excision of a portion of the growth. In the first case, a man of fifty-seven, operated on for lupus of the face and exhibiting lymphatic tumor at the angle of the jaw, showed no results from the injection. In the second case, a man of sixty, suffering from epithelioma of the lower tonsil and metastatic tumors of the neck, received three injections of 2, 3, and 4 cubic centimeters of serum. The treatment had to be discontinued because albuminuria developed. Under the microscope granular casts were found. The third case, a man suffering from cancer of the parotid, received eight injections. The progress of the disease was steadily towards a fatal termination. There was no alteration in the tumor. The fourth case, a woman suffering from inoperable scirrhus of the left breast, with metastases of the axillary and supra-clavicular glands, received injections of progressively increasing strength. A few minutes after the injection of 16 cubic centimeters she became dyspneic and cyanosed, with frequent, irregular, and feeble pulse. There was no change in the tumor. The fifth case, a man of thirty-one, suffered from spindle-celled sarcoma of the temporal region. Alarming respiratory symptoms developed after injection; the tumor steadily grew. Six cases suffering from malignant lymphoma of the neck received seventeen injections and twice developed dyspneic symptoms. In not a single case did the injections have the slightest influence upon the growth of the tumor.

Bruns, in examining the serum, found that it was not perfectly sterile. This finding is

corroborated by the case of Freymuth, in which erysipelas developed.

Emmerich and Scholl stated that Bruns's failure was due to the fact that he employed a negative serum and not that which they had finally adopted. They have never observed the complications reported by Bruns, and they verified the sterility of their serum by repeated culture. Alarming symptoms developing immediately after injection are certainly due to bad technique—for instance, the driving of the injection into vessels. They hold that there are in reality no dangers by this method of treatment. As for failure to get results, they believe the treatment was not long enough continued.

VAGINAL EXTIRPATION OF UTERUS AFTER LABOR.

CHROBAK (*Centralbl. für Gynaek.*, No. 21, 1895) advocates this practice in cases of uncontrollable flooding where rupture is suspected, though he admits that the only two cases in which he acted on this principle ended fatally. In one case, a placenta prævia labor, violent hemorrhage set in during delivery, and a laceration involving the cervix was detected. A tampon was applied; this rapidly became soaked, and a second was firmly packed into the uterine cavity. Hemorrhage continued, so that Chrobak decided on removing the uterus through the vagina, as that procedure seemed to him simpler than abdominal hysterectomy. He states that the operation was not very difficult. The uterus was nearly six inches long. As it proved difficult to extract, a piece two fingers'-breadth wide was cut, like a slice made in an orange, out of the anterior wall; then the organ was easily drawn out of the vagina. There was very little hemorrhage during the removal of the uterus. Complete rupture of its wall was discovered; the laceration had apparently been enlarged when the second tampon was applied. The patient died. No details of the second case are given. In one case the whole operation was done in four, and in the other in eight, minutes. So far as facility of extraction is concerned, Chrobak considers his experience "encouraging."—*British Medical Journal*, July 13, 1895.

THE SURGICAL TREATMENT OF MEDICAL INTRA-CRANIAL LESIONS.

ANGEL MONEY (*Intercolonial Quarterly Journal of Medicine and Surgery*, May, 1895), in a paper on "The Surgical Treatment of Medical Cases of Profound Loss of Consciousness," suggests that the time has come when radical measures may be tried for cases of this kind, which are simply permitted to die. Intracranial hemorrhage is regarded as a very natural accident in Bright's disease, atheroma, and hemorrhagic pachymeningitis. When the hemorrhage occurs in other situations than the head, death need not follow for some months, and even years, and if only a few extra weeks of conscious life can be attained by any means, such means, it is held, ought to be adopted. In the author's opinion, direct operation on the brain is preferable to ligature of the carotid artery. The diagnosis can thus be verified, and there is less risk of a fatal issue as the direct result of surgical interference. Ingravescent apoplexy due to cerebral hemorrhage may have its essential features simulated by embolism and thrombosis of cerebral vessels. In cases of hematoma of the dura mater an exploratory incision through the dura mater might afford temporary relief to the urgent head-symptoms and clear up the nature of the case. A case is recorded of cerebral hemorrhage into the right hemisphere as an illustration of the class of lesions in which, the author thinks, it would be the right thing to try the effect of craniotomy. In considering what would have happened had the hemorrhagic area been exposed and drained, he holds that the patient's condition and chances could have been rendered no worse by any kind of operative interference carried out with the usual precautions of modern surgery.—*British Medical Journal*, July 13, 1895.

PISTOL-SHOT WOUND OF THE ABDOMEN.

TAYLOR (*Journal of Practice*, No. 7, vol. ix) reports the case of a young man shot through the abdomen and exhibiting primarily but little shock, who was able to walk half a mile to his home and to retire to bed unassisted. Two or three hours after the injury, depression became marked, and exploratory incision along the track of the bullet showed that it had entered the peritoneal cavity and had perforated the left lobe of the liver. The wounds in the liver were bleeding freely. The abdominal cavity was flushed with hot saline solution and an unsuccessful attempt was made to stop the liver hemorrhage with deep sutures. This method was a signal failure, and strips of iodoform gauze were packed into the liver, the ends being brought out of the abdominal incision. The patient

was alarmingly collapsed, but was restored by subcutaneous transfusion of saline solution. In twenty-four hours the gauze was removed. Intestinal paresis, however, developed and the patient perished, the pulse never running over 100. Death was found to be due to septic peritonitis.

LIGATION OF THE SPERMATIC CORD.

ALLESSANDRI (*Policlinic*, 1895, No. 9), as the result of an experimental investigation upon the ligation of the spermatic cord, either as a whole or in part, comes to the following conclusions: Ligating the vas deferens is followed after a long time by atrophy of the testicles and epididymis; parenchyma shows fatty degeneration, and connective tissue increases. Ligature of the veins causes atrophy; ligature of the deferential artery also causes this result, but more slowly. Ligature of the internal spermatic artery, or the pampiniform plexus alone, causes some changes of nutrition, but these are limited. Ligature of the spermatic artery and part of the veins causes hemorrhagic infarct and degeneration, with epithelial death, and increase of connective tissue. The ligature of the deferential artery alone causes no injury. Excision of the nerve-fibres causes coagulation necrosis of the epithelium of the testicle and epididymis in isolated spots.

REMOVAL OF A PIECE OF PYLORIC MUCOUS MEMBRANE BY THE STOMACH-TUBE.

EBSTEIN (*American Journal of the Medical Sciences*) reports a case in which this accident happened, the fragment being found in the fenestrum of the tube. The case was one of chronic peritonitis with strictures and dilatations of the duodenum. Death occurred from septic peritonitis four days after a laparotomy. Neither loss of tissue nor cicatrix could be found in the stomach. Ebstein believes this accident to be much more frequent than is usually supposed. Position and size of the stomach, and, as in the case reported, adhesion with neighboring organs, favor the occurrence. The author advises distention before passing the sound, in order to be able to form an idea of the extent and configuration of the stomach. The sound must be sufficiently thin, and must be removed slowly and while water is allowed to run in. The occurrence of vomiting while the tube is in the stomach necessitates special caution.

VAGINAL HYSTERECTOMY BY GALVANO-CAUTERY.

BYRNE (*American Journal of Obstetrics*, October, 1895), in a paper upon this topic, giving very fully the operative details, concludes with the statement that, having now demonstrated the practicability of performing these important operations by the aid of the galvano-cautery, and to the exclusion of all ordinary cutting instruments, gynecologists who fail to take advantage of a method so safe and yet so promising assume the grave responsibility of withholding from the afflicted the most reliable means through which a cure, or at least a long respite from suffering and death, may reasonably be assured.

NEURALGIA OF THE KIDNEY.

SENATOR (*Berliner Klin. Woch.*, 1895, No. 13) describes cases of severe intermittent kidney colic in which operation has shown apparently a normally placed kidney without any perceptible disease. Nephrectomy and nephrotomy have often given relief, although no disease has been found. Operative treatment of these cases should be confined to nephrotomy as the last resort. This may be of service even in the neuralgias of tabes or of hysteria.

CASTRATION FOR HYPERTROPHIED PROSTATE.

KUMMEL (*Berliner Klinik*, 1895, heft 86) has performed castration for eight cases of prostatic hypertrophy, and also collected fifty-nine other cases. As a result of his experience, he holds that the operation is the true remedy. He has never noticed psychoses —such, for instance, as Fauls reports,—and gets his patients out of bed the day after the operation.

Reviews.

THE INTERNATIONAL ENCYCLOPÆDIA OF SURGERY. A Systematic Treatise on the Theory and Practice of Surgery by Authors of Various Nations. Edited by John Ashhurst, Jr., M.D., LL.D. Illustrated with chromo-lithographs and woodcuts. In seven volumes. Vol. VII (Supplementary Volume).

New York: William Wood & Co., 1895.

The editor states that the object of this supplementary volume is to furnish the readers of the International Encylopædia of Surgery a brief but sufficient account of such additions to both surgical science and surgi-

cal art as have been brought forward during the seven years which have elapsed since the revised edition of the original book was published, and as have seemed of sufficient importance to justify their incorporation in a work of this character, which makes no claim to be an ephemeris of theoretic novelties, but rather to be a trustworthy digest of accepted and established facts. The accomplishment of this object has in the main been entrusted to worthy hands.

Ernst, in the twenty-eight pages devoted to Inflammation, has well epitomized the advance of knowledge in this direction. Kammerer writes on Wounds and Wound Treatment; he describes the methods ordinarily in use for the disinfection of the hands, preparation of ligatures, application of sutures, etc.

Kiliani reviews the bacteriology of erysipelas, pyemia, and septicemia; he states that in the treatment of erysipelas we have no remedy which is even reasonably reliable,—the local use of ichthyol is not even mentioned; the effect of erysipelas on neoplasms is very briefly considered.

Conner describes the missiles of the modern rifle, the wounds produced by such weapons, and the treatment applicable in accordance with modern antiseptic methods.

Packard, in a consideration of poisonous wounds, does not present all of the modern testimony for and against the antidotal effect of certain of the remedies advocated,—strychnia, for instance,—and leaves the reader in some doubt as to the advisability of using these remedies in certain cases.

Under the caption of Hydrophobia is found an interesting paragraph upon the mad-stone.

In the few pages devoted to Scrofula and Tuberculosis, Forchheimer has well succeeded in condensing the knowledge acquired in the last few years. In such a work as this, paragraphs upon the antiquity, frequency and diagnosis of rachitis might well have been omitted. The article by Smith is, however, excellent, especially the section upon medical treatment.

In the section upon Anesthetics and Anesthesia the work of the Hyderabad Commission and of Hare and Thornton is quoted. It is interesting to note that the misstatement in regard to the greater safety of chloroform as an anesthetic for patients suffering from diseases of the kidney is not here repeated.

The editor, in considering Amputations, states that since the appearance of his article on this subject in the first volume of this work he has adopted what is known as the antiseptic method in a simplified form. He employs catgut ligatures sterilized with juniper oil and alcohol—a method which does not produce a sterile gut,—sutures with silver wire, and drains with india-rubber tubes of large calibre.

Several pages of tables are given, showing that the author's mortality has been reduced from 29.3 to 20 per cent. since the introduction of antiseptic methods.

In the section on Tumors, by Curtis, there is, of course, a consideration of the alleged parasitic origin of malignant growths. Recent advances in etiology, diagnosis and surgical treatment receive due notice.

The parasitic nature of gonorrhea, and the abortive and antiseptic treatments, are briefly but clearly described by White.

Sturgis writes on Chancroid, presenting the most recent bacteriology of this affection, and discussing treatment. To those familiar with Van Harlingen's admirable article upon Syphilis, it would naturally be expected that the author would have but little to add in this supplementary volume.

Cantrell contributes an excellent summary upon the surgical diseases of the skin and its appendages.

Dulles writes upon Diseases of the Bones, in his customary clear, scholarly fashion.

Lovett writes a valuable chapter upon Disease of the Joints, describing modern orthopedic treatment and the results which may be expected from it.

Nancrede's section on Injuries of the Head is one of the best in the book.

Diseases of the Breast, by Maurice Richardson; Injuries and Diseases of the Abdomen, by Vander Veer; and Injuries and Diseases of the Male Genital Organs, are all chapters of more than ordinary interest and excellence.

PREGNANCY, LABOR, AND THE PUERPERAL STATE. By Egbert H. Grandin, M.D., and George W. Jarmon, M.D. Illustrated with photographic plates.
Philadelphia: The F. A. Davis Co., 1895.

Pictorial additions to all kinds of medical work are distinctly the order of the day, and undoubtedly in many instances add very materially to the value of the text which they accompany. As indicated in the title of this volume, there are no less than forty-one photographic plates in the space of 254 pages of text, and as these plates are full-page illustrations they give a large amount of detail and indicate very clearly the methods which the authors desire to recommend. The only

plate in the volume which is of little value and mars the otherwise perfect series of illustrations, is the second one, which is supposed to illustrate the mammary signs of pregnancy, but does not do this at all as a colored illustration should. There is nothing particularly new in the text, but mention of some of the various illustrations will give an idea of the ground which is carefully covered. The most noteworthy of these are the plates illustrating how to palpate the presenting part at the brim; the sites of maximum intensity of the fetal heart-sounds in the various presentations; the various presentations themselves; the method of catheterizing the puerperal female; the processes of delivery; the treatment of the puerperal female by means of an abdominal binder and vulvar pad; and the various measures of artificial respiration which are used for the purpose of resuscitating children suffering from asphyxia following birth. The book should be placed in the hands of every young obstetrician, and is one which will add very much to his comfort and his information when he is called to his first case of labor. It is to be particularly recommended to this class of practitioners rather than to those who by long experience have acquired settled ideas as to the conditions they may meet or the treatment they should institute.

OUTLINES OF MATERIA MEDICA AND PHARMACOLOGY. A Text-book for Students. By H. M. Bracken, M.D.
Philadelphia: P. Blakiston, Son & Co., 1895.

We are told in the preface that this book is the outgrowth of notes arranged in 1893 for the medical students at the University of Minnesota; or, in other words, it is evidently a carefully prepared edition of the notes employed by Dr. Bracken in teaching his class. After quite a long introduction, in which the division of various medicinal agents is given and the official preparations are discussed, the author passes on to a consideration of drugs, taking up the acids, the metals, the non-metallic elements, the carbon compounds, and the drugs from the animal and vegetable kingdoms, using a classification therefor that is based upon the chemistry of the various medicinal agents. We do not think this is a very practical classification for clinical work. The text describes scarcely with sufficient fullness the physiological action and therapeutics of the drugs considered, but it doubtless affords a useful guide to the students who are fortunate enough to attend Dr. Bracken's lectures, since the major points which he considers are here summarized, and about them the student can group in his memory the nicer points to which attention is called by the lecturer.

PEDIATRICS: THE HYGIENIC AND MEDICINAL TREATMENT OF CHILDREN. By Thomas Morgan Rotch, M.D.
Philadelphia: J. B. Lippincott Co., 1895.

Of the comparatively few physicians in this country who have devoted themselves to the study of the diseases of children within the last few years, Dr. Rotch may be considered a leader, for he has not only contributed of his clinical experience to medical literature, but has enriched the knowledge of the profession by original investigations in numerous directions, the chief of which is, however, his study of the artificial feeding of children.

The volume before us is one of no less than 1100 large octavo pages, and is copiously illustrated, chiefly by means of photo-engravings. Some of these illustrations add much to the value of the text, but others are really of very little service. Thus we can see no particular advantage in Fig. 531 of a child suffering from general tuberculosis: close examination shows marked emaciation, but the cut is so imperfect that this is not readily shown. On the other hand the illustrations representing the outlines of the various thoracic and abdominal viscera in health and disease, and the beautiful colored plates in the chapter on The Blood and in regard to vaccination, add very materially to the value of the volume.

The chapter on The Blood will prove to many readers the most interesting and valuable, for Dr. Rotch has brought it up to the very latest date in his discussion of the subject.

The other articles in the volume which seem to us worthy of especial note are those upon the Care of Prematurely Born Infants, Treatment of the New-born, Eruptive Diseases, Pericarditis, and Diphtheria. An immense amount of information is brought together from all sources and added to that obtained by the author in his individual practice, and we think that this to a certain extent might have been decreased in bulk.

The style of the author is clear but not concise, and he always readily expresses the thoughts he wishes to convey.

Taking it all in all, the volume is of the greatest credit, not only to its author but to

American medicine, and we congratulate Dr. Rotch upon the completion of a book which will further decidedly increase his enviable reputation as an authority in children's diseases.

PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the Use of Practitioners and Students of Medicine. By William Osler, M.D. Second edition.
New York: D. Appleton, 1895.

The extraordinary success of the first edition of Dr. Osler's book, both in America and England, was due to the fact that the profession recognized in its author a clinical observer who possessed not only wide experience but the ability to draw from that experience the most valuable facts for the benefit of his professional brethren. In the present edition Dr. Osler has taken the opportunity to re-write quite a large part of the articles, to remove many of the mistakes and blemishes which it is almost impossible to exclude from a first edition of so large a work, and to introduce information concerning recent advances in clinical medicine which have become recognized as valuable additions to our medical knowledge. This is particularly true of the articles upon Typhoid Fever, Malarial Fever, and Diphtheria. One of the chief omissions has been the exclusion of the methods of clinical examination of the stomach which were discussed in the first volume.

Dr. Osler's book on "Practice" is naturally one which deals with the pathological aspect of clinical medicine rather than with its therapeutics, and it will remain a favorite with active clinical investigators so long as it so ably maintains the standard which its author set up when the book first appeared.

THE ART OF COMPOUNDING. A Text-book for Students and a Reference Book for Pharmacists at the Prescription Counter. By Wilbur L. Scoville, Ph.G.
Philadelphia: P. Blakiston, Son & Co., 1895.

This is a book that does exactly what its title tells us the author wishes it to do, for it clearly describes and directs the methods by which physicians, students and pharmacists prepare the proper medicinal compounds, official or otherwise. In the early part of the volume much good advice is given as to the technique and methods of compounding, and tables are introduced showing the number of drops in a fluidrachm, and the Latin terms used in prescriptions. Directions are also given as to the means by which cleanliness of pharmaceutical utensils is to be attained, and following this are directions for working formulæ for the preparation of mixtures, emulsions, pills, and similar pharmaceutical products.

The book is worthy of cordial recommendation to medical students and students of pharmacy, and we believe it will become popular as soon as this body of men have an opportunity of appreciating its practical value.

MANUAL OF GYNECOLOGY. By Henry T. Byford, M.D. Containing 234 illustrations, many of which are original.
Philadelphia: P. Blakiston, Son & Co., 1895.

The author has written this book, not for the specialist, but rather for the student, to be used during his college course and afterward during his first years of practice, as a guide for the less serious gynecological complaints which he is likely to be called upon to treat. By an excellent plan the essentials for the student, and the amplifications and details for the practitioner, are differentiated by the printing of the former in large type. Especial pride has been taken in the arrangement of the subject matter, the author claiming that it has the peculiarity of holding the student's interest better than the classification of most text-books. He states that "when a course begins with a consideration of the external genitals, the student, after a time, becomes impatient for the more interesting subjects."

A perusal of the work shows it to be eminently practical and more comprehensive than would have been suspected from the modest preface. It is likely to prove extremely serviceable to the class for whom it is written.

HANDBOOK OF THE DIAGNOSIS AND TREATMENT OF SKIN DISEASES. By Arthur Van Harlingen, Ph. B. (Yale), M.D. Third edition, enlarged and revised. With sixty illustrations, several of which are in colors.
Philadephia: P. Blakiston, Son & Co., 1895.

This work of Van Harlingen's deserves unqualified praise. It is written for the practitioner, hence but little space is given to pathology, especial attention being devoted to diagnosis and treatment. While a discussion of the commoner and more troublesome skin diseases occupies the greater portion of the book, the rare diseases are none the less included, so that the book, considering its size, is remarkably comprehensive. For the purposes of the practicing physician it could not possibly have been better planned. To all who have not become specialized—and

this applies to the great bulk of the profession—such a work as this would seem to be absolutely essential. So far as the reviewer knows, there is not one in its class which favorably compares with this in clearness of expression and soundness of teaching.

PRACTICAL URINALYSIS AND URINARY DIAGNOSIS. A Manual for the Use of Physicians, Surgeons, and Students. By Charles W. Purdy, M.D. Second, revised, edition.
Philadelphia: The F. A. Davis Co., 1895.

But a few months ago we had pleasure in cordially endorsing Dr. Purdy's book upon Urinary Analysis, and we are told that in this edition but little has been added to the text save what was necessary to fill omissions in its earlier publication. We have used Dr. Purdy's book considerably, and after doing so do not hesitate to state that it is probably the best clinical manual extant in regard to the study and examination of the urine in its relation to the diagnosis of disease. We trust that the second edition may be as well appreciated as its predecessor, if for no other reason than that its popularity will increase the knowledge of the profession in regard to the significance of urinary changes in disease, for the urine is a secretion too often ignored by the hurried practitioner in coming to the diagnosis of a case.

THE CARE AND FEEDING OF CHILDREN. A Catechism for the Use of Mothers and Children's Nurses. By L. Emmett Holt, M.D.
New York: D. Appleton & Co., 1894.

Before criticising a book, the reviewer should read the author's preface. In this particular instance the preface states that the catechism under discussion was prepared as a manual to be employed in the Practical Training School for Nursery Maids, and that it is published at the request of many friends in the hope that it will serve a useful purpose in similar institutions, and that it may also be of value to mothers and may be put in the hands of the ordinary child's nurse. The teaching is in the form of questions and answers and is extremely practical, dealing mainly with essentials, encumbered by no unimportant details, and should admirably subserve the purpose for which it was prepared.

A HANDBOOK OF MEDICAL DIAGNOSIS FOR STUDENTS. By James Herrick, M.D. Illustrated.
Philadelphia: Lea Brothers & Co., 1895.

This is a small octavo volume of 424 pages, in which Dr. Herrick has very successfully condensed the main facts for the diagnosis of the various diseases commonly met with in the practice of medicine. At various places through the volume are comparative statements as to the chief diagnostic points of the diseases considered, and there are two colored plates illustrating the blood of malarial fever and the blood of severe anemia and leukemia. The illustrations are most of them borrowed from well known volumes, but are all good and appropriate.

Considering its size, and therefore the limits to which the author has subjected himself, we must regard the volume as a contribution to medical literature which will be useful to the students who obtain it and will add to the reputation of the author who has compiled it.

THE PHYSICIANS' VISITING LIST FOR 1896.
Philadelphia: P. Blakiston, Son & Co., 1895.

This well known Visiting List has been sent us for notice in the THERAPEUTIC GAZETTE. More space has been allowed in this edition for writing the names of patients and for memoranda, and a column has been added for the amount of weekly visits and for the ledger page. At the same time, the publishers state that they have endeavored to keep the bulk and price as small as heretofore. The List is published in several forms, and that for seventy-five and one hundred patients per week is divided into two volumes, one for each half of the year, so as to make a less bulky book for the pocket. As this is the forty-fifth year of the publication of this List, the publishers have learned by experience the needs of the physician.

THE MEDICAL RECORD VISITING LIST. 1896. New York.

This is a Visiting List very much like others with which we are familiar issued by the publishers of the *New York Medical Record*, and is arranged in such a way that the physician can keep an accurate account of the number of his visits to patients and other matters connected with daily practice. The first pages of the List are taken up with a calendar and a method of estimating the probable duration of pregnancy, a list of maximum doses of ordinary drugs, and similar interesting details. We notice that in the treatment of phosphorus poisoning nothing is said of the use of permanganate of potassium or peroxide of hydrogen. The List is well bound and will render good service to the physician.

Correspondence.

PARIS LETTER.

By A. J. Magnin, M.D.

Since the reading by Dr. Albert Robin of a paper on the numerous therapeutic properties of the glycero-phosphates, the profession in France has taken great interest in the good results obtained in many cases, and I myself, both in collaboration with Dr. Good, of Paris, and in my own practice, have so often had occasion to judge of their beneficial effects, that a few remarks on the subject may be of interest to your readers.

The diseases in which they can be used with advantage are the following:

First, functional disturbances of the nervous system, among which neurasthenia in all its forms holds the first place, whether it be due to excesses (physical and mental), to phosphaturia, to dyspepsia arising from insufficient gastric activity, to incomplete function of the intestines, or to diseases of the brain or spinal cord, and when depression and nervous asthenia constitute the chief clinical features.—Patients under the influence of the glycero-phosphates soon complain less of vertigo, headache (especially occipital pain), insomnia, muscular fatigue, and general inability to put forth mental or physical effort. Hysteria particularly seems to yield with comparative rapidity to active medication with the glycero-phosphates. As illustrative of the above statements, permit me briefly to report a case:

Mr. X., aged thirty. Insanity in the family. Physical condition excellent; no organic disease. Complains of constant excruciating pain in the back of the head and in the neck, of insomnia, and of unsteadiness of gait. Is distrustful of himself and of others; at times shuns the society of even intimate friends, dreading that he may commit some unaccountable act; he is often absolutely unable to write or read, and has frequent attacks of melancholia, with suicidal ideas.

A daily hypodermic injection of a solution of glycero-phosphate of soda is administered. At the end of six weeks, Mr. X. is able to write important business letters without effort; goes about enjoying himself and attending to his social duties; the pain and insomnia have completely disappeared.

The glycero-phosphates build up rapidly the impaired nervous system which is found during convalescence from all serious acute diseases, especially *grippe;* which exists in all forms of phosphaturia, excepting the form dependent on acid dyspepsia; and which accompanies muscular atrophy, particularly when of rheumatic origin. They relieve quickly and permanently the pain of chronic lumbago, sciatica, and locomotor ataxia. Some very remarkable cases of improvement in the last-mentioned disease have been reported: the intense suffering disappears in a few days, and many patients insist that after ten or twelve injections they can move with relative ease and certainty.

Dr. Robin quotes an interesting case of improvement in the treatment of Addison's disease. A workman, thirty-three years old, was brought to the hospital with characteristic symptoms of the complaint—he was unable to walk, vomited continuously, and suffered from a generalized feeling of cold. Fifty centigrammes of glycero-phosphate of soda were injected daily for one month. After remaining six weeks in hospital, he was able to return to work, having gained eight pounds in weight, recovered his appetite, and feeling well, although the bronzed color of skin and mucous membranes persisted. Whenever he feels weak he comes to have a few injections, and takes up his work again as before.

Second, the administration of the glycero-phosphates gives excellent results in all cases of organic impairment due to a lack of activity in the processes of nutrition and oxidation. In diabetes the general condition improves rapidly, and the quantity of sugar diminishes in a marked manner and at times disappears completely. I have personally had occasion to observe a number of such cases.

In albuminaria, due to chronic Bright's disease or to phosphaturia, accompanied by diminution of the urea, the results obtained are, as a rule, remarkable, *i. e.:* improvement in general health, increase in weight, diminution and sometimes disappearance of the albumin and of the excess of phosphates.

Patients suffering from anemia, chlorosis, chronic gout and rheumatism, with cachexia, pulmonary tuberculosis, senile debility, and persistent chronic dyspepsia, are greatly benefited by the administration of an appropriate form of the glycero-phosphates.

Third, in a great number of diseases of the bones, such as rachitis, osteomalacia, tubercular affections, and certain cases of fracture, the glycero-phosphates of lime and magnesia have rendered good service.

The most efficacious mode of administra-

tion is undoubtedly by hypodermic injection, and the best solution to use is one of glycero-phosphate of soda, although other salts have also been employed.

The *modus operandi* is the following: A metal or glass syringe, with a piston of rubber, having been thoroughly boiled, is filled with a sterilized solution of glycero-phosphate of soda, and one, two, or even three cubic centimeters are injected daily into the glutei muscles on either side. Two points are of the utmost importance: the syringe and needle must be *thoroughly* cleansed (prolonged boiling is the most convenient method), and the solution used must be perfectly aseptic. The latter contains, to each cubic centimeter, twenty centigrammes of glycero-phosphate of soda.

By observing absolutely the above precautions, abscesses and even spots of painful induration can always be avoided.

If necessary, as much as one gramme of glycero-phosphate of soda can be injected daily. If glycero-phosphate of lime be used, half the amount constitutes a full dose.

Internally the glycero-phosphates of soda, lime, magnesia, potash and iron are administered either in wafers, pills, or solution; they should be taken with meals, and combined with a little pepsin and maltine. The doses are from thirty centigrammes to one gramme a day for the glycero-phosphates of soda, potash, lime, and magnesia; from ten to thirty centigrammes for the iron salt.

One of the advantages of the hypodermic administration resides in the prolonged effect of the medication, even after treatment has ceased.

Speaking in a general way, the glycero-phosphates should not be used in diseases in which there is albuminuria or in which organic oxidations are above the average, such as acute gout or rheumatism, nor in affections in which there is hypersecretion of the liver and acute excitability of the nervous system.

I have obtained in several cases remarkable results in the cure of the impaired general condition due to acute or chronic alcoholism, by this method of treatment.

MANCHESTER LETTER.

By Robert Wild, M.D., M.Sc.

The most prominent feature of medical interest in this city at the present time is the question of Hospital Extension. The Royal Infirmary is now considering what is the best form for the much-needed increase of accommodation to take. The two chief obstetrical and gynecological hospitals are undergoing a process of amalgamation, with a view to the building of a large and complete lying-in hospital and a new hospital for women and children. The Skin Hospital has recently removed to larger premises in which a long-needed provision is made for in-patients. The medical school has also been largely extended by the provision of new laboratories and lecture theatres which are now in use, and more than double the previous accommodation. Among other departments the pharmacological laboratory has shared in the general extension, and a short account of it may be of interest to the readers of the Therapeutic Gazette.

The department consists of two large laboratories and three smaller rooms. One of the laboratories is used chiefly as a class-room for students and for practical demonstrations in pharmacology, a regular course of which is given during the summer session in illustration of the lecture course on systematic therapeutics. A small water-motor supplies the power for working the various recording drums, and this room also contains three incubators for testing the action of drugs upon the isolated organs of warm-blooded animals. The other laboratory is used entirely for the prosecution of original research by advanced workers under the direction of Professor Leech; the recording apparatus is driven by an electro-motor, and the laboratory is fitted with the apparatus and instruments required for the prosecution of various kinds of experimental work.

The smaller rooms comprise a professor's private room, which is also used for microscopical work, a departmental library, and a small photographic room which is used for the production of lecture diagrams, copying tracings, and other similar work.

There is in addition an extensive materia medica museum, and a separate pharmaceutical laboratory in which students are taught the practical details of pharmaceutical processes, and research work of a more strictly chemical character is carried on.

Professor Leech showed a patient at a recent meeting of the Medical Society, who had been under his care nineteen years previously, and who well illustrated the therapeutic value of prolonged rest in an apparently almost hopeless case of cervical pachymeningitis. The patient at fifteen years of age had an abscess at the back of the neck, from which a considerable-sized piece of bone was

discharged; then followed entire loss of power in arms and legs, rigidity of muscles, much exaggerated reflexes, and tremors; later on, the arm muscles wasted and there was characteristic deformity of the hands; there was also some anesthesia and incontinence of urine. The treatment adopted was complete rest, continued for nearly three years. He eventually recovered, and has remained well for sixteen years and able to do his regular work. The only signs of his past illness are a little deformity of the right hand and somewhat exaggerated reflexes.

In the discussion which followed, the opinion was expressed by the surgeons present that at the present time such a case would most certainly have been submitted to operation; and Professor Leech suggested that some of the cases which have recovered after surgical interference might very probably have been equally satisfactory had they been treated by rest alone; he believed that the treatment of such cases by complete rest was not, as a rule, given a fair trial, in that it rarely lasted for more than a year, whereas in his case two years elapsed before the patient could stand, and another year before walking was possible.

Professor Dreschfeld at the December meeting read a very interesting paper upon the "Etiology and Treatment of Malignant Endocarditis;" with regard to treatment he stated that in the more chronic cases he had found great benefit to result from the use of quinine in large doses, combined with the regular administration of arsenic. The quinine was given in doses of four or five grains or more three times a day, and the arsenic in doses of five minims of liquor arsenicalis three times a day and gradually increased up to the limit of toleration.

INTESTINAL OBSTRUCTION.

To the Editors of the THERAPEUTIC GAZETTE:

SIRS:—September 10, 1895, I was called to see Mrs. J. W., aged thirty-eight years, the mother of one child. I found upon arrival that the patient was a lady of medium height, corpulent, weighing 140 lbs. She had been attacked a few hours before with a chill of several minutes' duration, followed by severe griping pains in the abdominal region, and immediately thereafter an attack of purging and vomiting of more than ordinary violence. The temperature was subnormal, and the surface of the body was moist with a cold perspiration.

Not expecting any trouble of a serious nature, I made her comfortable and requested to be called again in case her condition should not improve. I was called the following evening and found the patient still very much distressed; the vomiting had continued at intervals; the diarrhea, however, had ceased, but she was now complaining of severe pain through the hypogastrium, especially acute upon the right side. I made a very careful examination, but, owing to the tenderness and her abundant development of adipose tissue, was unable to form any definite opinion of the case; so Dr. Geo. H. Gibson, of this city, was called, the patient was anesthetized, and we had little trouble in making a diagnosis of intestinal obstruction from fecal accumulation in the ascending and transverse colon. We were able to outline a tumor of considerable size, so hard that indentation was not perceptible from pressure through the vagina and counter-pressure over the tumor itself.

We introduced a rectal tube as high as the sigmoid flexure (the patient being in the knee-chest position), and injected about two quarts of very hot water, which was retained for some time but was finally discharged. The enema was repeated at intervals of four hours, under my direction, the water sometimes containing several ounces of sulphate of magnesia, but after seventy-two hours of complete failures I informed the family that surgical interference was indicated, and recommended an immediate operation. This was not looked upon with favor by those interested, and I was left to do the best I possibly could with the ordinary medical treatment in such cases.

The condition of the lady at this time was not good. Her temperature was subnormal, there was frequent vomiting of greenish mucus containing bile, and she was unable to retain the nourishment which she had taken "contrary to orders." There was suppression of urine, severe and continuous pain over the seat of the obstruction, and her skin assumed an icteric hue. Respirations were withheld as long as possible, to obviate pain. The cardiac pulsations were very rapid, but the pulse was full. There was an anxious expression of the countenance.

To allay pain and vomiting, she was given hypodermically morphine and atropine as often as necessary, also nitrate of strychnine one-fortieth grain to keep up the heart's action and to maintain the temperature; hot fomentations over right side of abdomen. Small quantities of beef peptonoids and egg-

albumen were administered per rectum at stated times during the day. This was the therapeutic method persisted in throughout, in order to sustain the patient. My main efforts, however, were directed to the seat of trouble. I repeated the enemas of water frequently, using a fountain syringe with a pressure of from eight to sixteen pounds; injected quantities of olive oil; inflated the bowel with air; but all to no purpose.

Believing that perhaps we might have a case of paralysis, I introduced a rectal electrode as high as possible, passing the faradic current to a sponge electrode placed over the abdominal prominence of the tumor. This procedure was repeated three times in one day, twenty minutes at each sitting; it had no other effect than to cause very excruciating pain, which would cease immediately when the current was removed.

Small enemas of glycerin and water, and of chloroform, were made use of, but all to no purpose. It must not be forgotten that she had received massage from the first.

At this time I conceived the idea of throwing high up into the colon about four drachms of the fluid extract of lobelia. I took an old stomach-tube and passed it the entire length, twenty-seven inches, above the sigmoid and as far as I could go with it; then, with the patient in the knee-chest position, I attached a fountain syringe and proceeded to inject the lobelia (four drachms to the pint). Withdrawing the tube, I held the enema back by a cotton tampon placed well up in the rectum, which was allowed to remain "for perhaps an hour." When the tampon was withdrawn it was followed at once by the discharge of the solution, accompanied by several pieces of feces. The action of the lobelia upon the patient was very depressing, so I dared not use it again.

Giving her time to rest sufficiently, I then administered an enema of ox-gall (one-half ounce to a pint of water) high up; this was retained for several hours, when it was rejected with a quantity of offensive and hardened feces. This procedure was repeated three times, and succeeded in dislodging the mass, fourteen days from the time I was first called.

I have made use of the ox-gall in this way often, in relieving the constipation of pregnancy, with very satisfactory results. I have also made use of it in one case of constipation in a child since treating the above case, and the results were very pleasing. The use of lobelia I think a little harsh, yet if used early in this case when the patient was stronger it might have been equally effective, and not have caused any exhaustion in the patient. I shall try it again when I get a stubborn case of chronic constipation.

Yours truly,

FRANK A. GREEDY, M.D.

DENVER, COLORADO.

Notes and Queries.

THE KOUMISS OF THE CAUCASUS.

The Caucasians designate under the name of "Kephyr" an acidulous beverage, lightly alcoholic, prepared by the action of a special ferment, known as "Grains of Kephyr," on milk. These grains are small yellowish-white masses, compact, elastic; when fresh they have a cartilaginous consistence; when dry they become hard, more friable, of a dirty yellow color, translucent (somewhat resembling tapioca or sago). They vary in size from a nut to a pinhead, and their surface is irregular and bosselated. Placed in water, they swell somewhat, become softer and of a whitish color.

The zoöglea encloses two species of bacteria and a yeast, the latter probably identical with the yeast of beer (the *Saccharomyces cerevisiæ*). One of these bacteria is in short, immobile rods—the lactic ferment of Pasteur (*Bacillus lacticus*); the other consists of long bacilli, slowly motile, often showing slight enlargements at their extremities—this, the *Bacillus caucasicus*, is special. The part played by these different bodies is for each most distinct. The *Bacillus lacticus* secretes a rennet which coagulates the casein of the milk, a process necessary to its ulterior transformation; it also furnishes a special *diastase*, which changes the lactose into maltose by a process of hydration, thus fitting it to undergo the alcoholic fermentation through the action of the yeast. The *Bacillus caucasicus*, through the medium of a *casease* which it secretes, dissolves the precipitated casein, transforming it into an albuminose.

The milk, at first opaque and holding in suspension flocculi of the precipitated casein, is now transformed into a transparent liquid, rich in peptones, slightly acid, and containing considerable carbonic dioxide and some alcohol, these last being produced by the yeast on the saccharine matter of the milk.—Translated from the French of E. Mace, by T. B. Rogers, Veterinarian.

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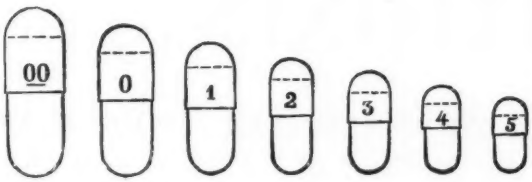

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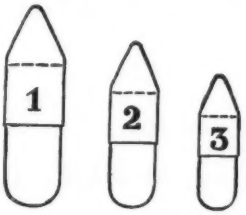

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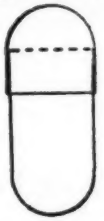

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